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THE
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Original Articles.

THE NERVE ELEMENTS IN HEALTH AND DISEASE, BEING THE PRIZE SERIES OF PHOTO-MICROGRAPHS OF THE AMERICAN MICROSCOPICAL SOCIETY, 1894.

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Buffalo, N. Y.

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THE elementary constituents of the nervous system comprise nerve cells, nerve fibres, and nerve-supporting or neuroglia tissue. The function of the cell is the generation of an impulse, of the fibre its transmission, while the function of the neuroglia is to unite and support the nerve elements so as to insure successful termination.

Figure 1.—The nerve cell or ganglion cell, the active constituent of the nervous system, is composed of a mass either pyramidal, spherical, pyriform, or ellipsoidal, of protoplasm, from which prolongations or processes one or many project in various directions.

This mass of protoplasm is either of a granular or striated structure, contains a clear rounded or oval nucleus surrounding a nucleolus, and small particles of yellowish pigment granules. Every fully developed nerve cell gives off one or more processes or poles, one of which, after a brief course, becomes invested with a myelin sheath and proceeds as a nerve fibre, the others continue in the original condition connecting with the

blood-vessels and lymphatics serving as feeders to the cell body. The former is called the axis cylinder or Deiter's process, gives off many collaterals during its course and ends in a brush-like expansion or end brush connecting with other nerve units or neurons. The latter or protoplasmic processes do not connect with other nerve processes, but divide, sub-divide and anastomose, forming a network of slender, protoplasmic threads interlacing with the fibrils of other cells, but probably not uniting with them.

According to Golgi and others, the multipolar ganglion cells may be divided into two types. In the cells of the first or motor type, the axis cylinder process is directly continuous with the axis cylinder of the nerve fibre. In the second, or sensory type, the axis cylinder process divides into a plexus of fibres forming a complex basket-like mass out of which a single nerve finally emerges.

The size of the ganglion cells varies from 10 micromillimeters to 100 micromillimeters, the motor cells of the ventral cornua of the myelon and those of the motor zones in the brain being the largest.

Figure 2.—The ganglion cells are situated in the gray cortex of the cerebrum and cerebellum, gray cornua of the myelon and in the spinal and peripheral ganglia.

In the myelon they lie within the peri-ganglionic lymph spaces which vary in size according as the cells are in a state of rest or fatigue. When fatigued the protoplasm of the cells is shrunken and contracted and the lymph spaces are consequently larger and more conspicuous. As soon as the cells regain their normal rest and vigor they resume their usual size and the lymph spaces become correspondingly smaller. The nuclei of these cells behave in exactly the same manner, becoming larger or smaller according to the physical condition of the cells.

These peri-cellular spaces are limited by a delicate elastic hyaline membrane and are lined with nucleated endothelial plates. The gray matter surrounding the ganglion cells is composed of a modified form of neuroglia and connective tissue cells, the substantia spongiosa, including within its meshes, medullated and non-medullated nerve fibres of varying sizes, blood-vessels, lymphatics, and the protoplasmic and axis cylinder processes of the ganglion cells.

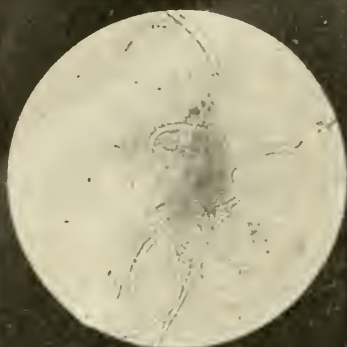
Figure 3.—The pathological changes occurring in

the gray matter of the myelon, the result of some acute or sub-acute inflammatory process are in all cases most disastrous to the ganglion cells and their immediate surroundings. There follows such inflammation, hyperplasia of the connective tissue, marked increase of the glia cells infringing upon and destroying in part or in whole the ganglion cells and the substitution therefor of a dense fibrous or sclerotic tissue. The contraction of this newly-formed tissue may even lead to the formation of cavities in the gray matter.

Along with the sclerosis there is also present cell proliferation, blood-vessel changes, and disturbances in the lymphatic circulation. This process is termed a poliomyelitis and is most common in infant life, although adult forms are often met with.

Figure 4.—The neuroglia or supporting tissue of the nervous system is derived from the ectoderm, and is composed of glia cells having a rounded or stellate body from which thread-like processes ramify in all directions filling up the interstices between the cell bodies, nerve fibres, and cell processes. These cells have a nucleus and stain readily with the carmine dyes, but particularly well with the Golgi silver nitrate method. They appear in Golgi preparations as small black spider-like figures with innumerable arms and have received the designation "spider cells." Their function is to unite and hold together the nerve elements, and in the white matter of the myelon they are materially aided by prolongations from the pia dividing and subdividing, forming a veritable skeleton for the support of the nerve fibres and for protection to the blood-vessels and lymphatics entering or departing from the myelon.

* Figure 5.—The function of the neuroglia cells is typically manifested in the white matter of the myelon where they serve to unite and support the bundles of nerve fibres. They are not distinguishable, however, except in places where the cell body is perchance transected and then appear as oval or ellipsoidal masses between innumerable nerve fibres. The cross section of the nerve fibres appears like a mass of cells having a nucleus surrounded by a homogeneous substance and separated from each other by a well-defined capsule. These apparent cells are the transected nerve fibres, the supposed nuclei being the axis cylinders, and the homogeneous substance surrounding them being the medullary substance or white substance of Schwann. Unlike



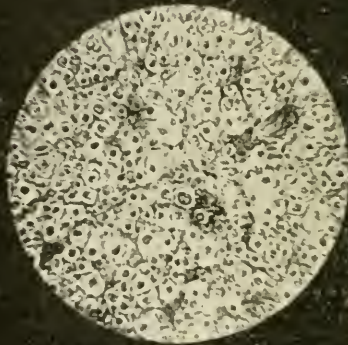
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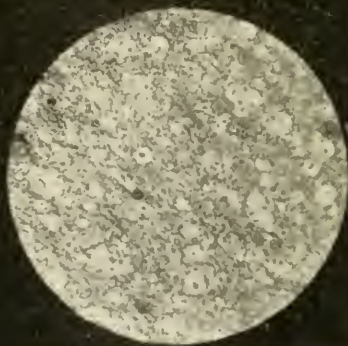
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6

the peripheral nerve fibres, the medullary sheath is not present in the cerebro-spinal nerve fibres, the surrounding neuroglia being sufficient for their protection. These fibres are of varying sizes, ranging from 1 micromillimeters to 20 micromillimeters, the largest belonging to the motor conductors, the smallest to the sensory. The former are found especially in the direct and crossed pyramidal tracts, the latter in the columns of Goll.

Figure 6.—By far the most prevalent lesion of the white matter of the myelon is that of sclerosis, the result of an inflammatory process. As in sclerosis of the gray matter so here also is found a marked increase in the number of neuroglia cells, with hyperplasia of the pial prolongations. As a result the nerve fibres are encroached upon, and as the process continues they are suffocated, destroyed and finally obliterated by the encroaching newly developed tissue. Entire tracts or systems, or the myelon *in toto* may be converted by disease into a solid or nearly solid mass of sclerotic tissue, perhaps here and there a nerve fibre remaining intact, a vestige of the once normal condition.

EXPLANATION OF PLATE.

Figure 1.—Large multipolar ganglion cell from the ventral cornu of the myelon, showing nucleus, nucleolus, protoplasmic and axis cylinder processes, ammonia carmine stain; magnified 500 diameters.

Figure 2.—Section of ventral cornu of myelon in a normal condition showing the multipolar ganglion cells within the peri-ganglionic spaces and surrounded by the substantia spongiosa; magnified 150 diameters.

Figure 3.—Section of ventral cornu of the myelon in a pathological condition (poliomyelitis anterior). The process has destroyed all the ganglion cells, and in their stead a dense mass of sclerotic tissue is found. Compare with Fig. 2; magnified 100 diameters.

Figure 4.—A glia or neuroglia cell with its branching processes, Golgi stain; magnified 500 diameters.

Figure 5.—Section from the white matter of the myelon in a normal condition showing the cross section of the nerve fibres with their axis cylinders surrounded by the white substance of Schwann. The bodies of several glia cells are shown, but the processes are not distinguishable; magnified 150 diameters.

Figure 6.—Section of the white matter of the myelon in a pathological condition (Sclerosis), showing the almost complete destruction of the nerve fibre and the substitution therefor of a sclerotic fibrous tissue. Several healthy nerve fibres are seen still intact, but the great majority have disappeared. Compare with Fig. 5; magnified 100 diameters.

Figures 1, 2 and 3 represent therefore the normal and pathological condition of the gray matter of the myelon, while figures 4, 5 and 6 represent the normal and pathological condition of the white matter.

These photo-micrographs were made from untouched negatives, exposed three to ten seconds in sunlight, developed with eikonogen, and fixed with hyposulphite of soda and borax. They were printed on albumin paper, toned with chloride of gold and mounted on card board.

THE ACTION OF STRONG CURRENTS OF ELECTRICITY UPON NERVE CELLS.¹

BY PIERRE A. FISH, D. SC.,

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(Preliminary Note.)

THE researches of Hodge, Mann and Vejas, have demonstrated that weak electric currents sufficiently prolonged, have been able to produce unmistakable changes in the structure of the nerve cell, as an evidence of fatigue. Such changes have been found in the cells of the cerebrum as well as in the spinal and sympathetic ganglia.

If instead of a weak and prolonged current, a much stronger and shorter current be applied, ought more emphasized symptoms of fatigue to be expected?

If fatigue be continuous, with no opportunity for recuperation, death would ultimately ensue. Since a weak current applied directly to the nerves causes exhaustion, it would seem reasonable to infer that a very strong current applied to the skin at the proper places would tire a person to death very quickly, and, at least, leave as marked changes in the nerve cells as the weak current does.

This question was of paramount interest, when, in April, 1894, there came into my possession while at Cornell University, Ithaca, N. Y., a portion of the cervical myel of L. R. W., a victim of an electrocution.

Such statements as the following might lead one to expect some very radical change in the appearance of the cells: "1740 volts were sent coursing through the body, pounding at his nerve centres with all the force of so many trip-hammers," and again, "the current shattered his nerve cells."

In the case of L. R. W. portions of the cervical myel were cut in two planes, transverse and sagittal. The cells in the ventral horns were examined particularly and the conditions found in Figs. 3 and 4 were noted.

¹ Read at the Eighteenth Annual Meeting of the American Microscopical Society, Ithaca, N. Y., Aug. 21 1895.

Vacuoles varying in size and number were located throughout the cell-body, intruding more or less upon the area of the nucleus. This intrusion appeared to me not as a direct invasion within the nuclear area, but as an overlapping of the nucleus by the vacuoles. In many cases the margin of the vacuole abutted against that of the nucleus, and occasionally there appeared to be a slight indentation in the latter at this point. The nucleolus was well marked.

If judgment were to be passed after the examination of the material from this individual only, it would perhaps be most natural to conclude that the vacuolation of the nerve cells was due to the action of the electricity.

It was not generally believed that the murderer was insane, nor that he was an excessively heavy drinker of alcoholic spirits, either of which, as well as other diseases, are said to cause vacuolation in the nerve cell.

In April, 1895, I was enabled personally, to procure some more material. The tissues were in the fixing reagents within four hours after the electrocution. They were selected from the same regions as in the former case and some of them hardened and examined by the same methods for exact comparison.

In this individual the nerve cells showed the normal conditions so far as the microscope could reveal them. Very rarely, indeed, there could be detected a slight suggestion of a vacuole in a cell.

The murder committed by this man was of the most wanton and brutal character, and it was believed by some that he was insane. He brooded over the conditions of his birth (he was an illegitimate child), his anxiety to know of his parents, coupled with the shame they had bestowed upon him, worried him greatly, and may have affected his mental balance.

The appearance of the nerve cells, however, did not indicate this so much as in the first case, where no special claim of insanity was made. The gross aspect of the brain presented nothing uncommon, except that its weight was a little more than the average.

Age conditions need not enter, for both were young men, the former, L. R. W., being about thirty-five and the latter, W. L., about twenty-four years old.

The evidence based upon these two cases is conflicting and unsatisfactory; but when compared with the results of others from similar material, the condition found in the second case (W. L.) seem to correspond, namely:

that no apparent abnormal phenomena are shown. This also holds true for other than human tissue, for in the brain of a calf experimentally electrocuted and examined histologically, Dr. Wm. C. Krauss, of Buffalo, N. Y., in 1890, found "the result of the microscopic examination negative as far as the physical condition of the separate brain elements are concerned."

The question as to the instantaneity of death is still a matter of controversy and does not properly come within the scope of this paper.

The rapidity of the electric current depends upon conductivity, amount of potential, as well as other things.

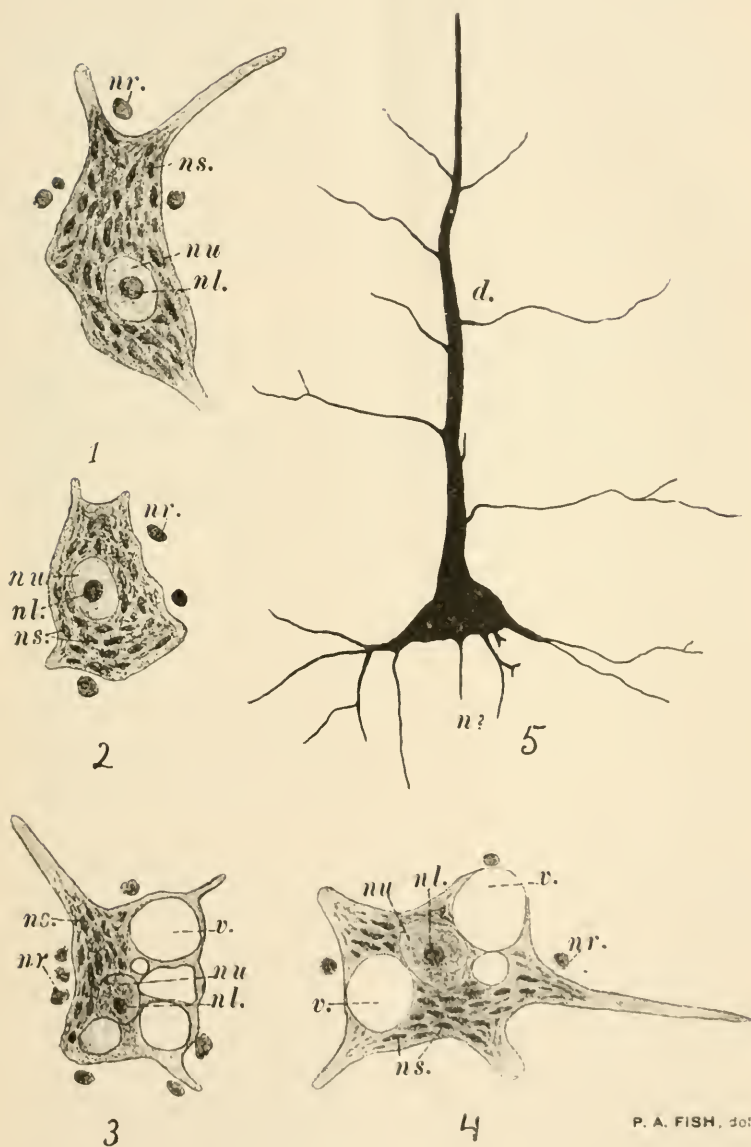
It is certain that a nerve is not nearly as good a conductor as a copper wire, nor is it said to be as good as the blood.

Even if the nerve be a relatively poor conductor of electricity, the estimated rate of passage of the current, as compared with that of a nerve impulse, would leave the balance considerably in favor of the electricity, making it probable that the current arrives at, and paralyzes or kills the nerve cells before the sensation can be conveyed there.

Experiments performed upon dogs, by those interested in the subject, show that the heart is the first of the vital organs to cease its visible action. This has been observed by first anæsthetizing the animal, removing a sufficient portion of the parietes, keeping up respiration by artificial means and then applying the current; instantly the heart was seen to stop its beating. The effect was just as marked when the experiment had been carried so far as to cut the vagus nerves. In the majority of cases the heart was still before respiration had stopped.

Of twenty-four dogs tested in this respect there were only three in which this was a matter of doubt, and in these three "no priority could be assigned to the failure of either function."

Dr. A. M. Bleile (*Electrical World*, N. Y., July 6, 1895) believes that death from electric shock is due to the contraction of the arteries, caused by the action of the current on the vasomotor centre, and that this constriction of the arteries offers a mechanical impediment to the flow of the blood which the heart is not able to overcome. When nitro glycerine or nitrite of amyl was



given to counteract this effect, greater currents of electricity could be borne.

The question arises, if the use of these reagents, after the electrocution, would not relieve this constricted condition, or, as has been suggested by others, that an application of a medical electric current might bring about the same result and promote resuscitation.

Amperage must be taken into account as well as the voltage. A continuous current of very high voltage may be received without fatal results. A very rapid, alternating current, in which the alternation is so rapid as to be practically continuous, likewise is not necessarily fatal.

The current usually employed at electrocutions, 1,700 volts and eight amperes, is said to be equal to about twenty horse-power. Such a force turned loose into a human body must effect wonderful changes in the living tissue, although for the most part subtle enough to evade detection by the microscope. The constituents of living protoplasm are too little known to enable us to understand what changes are effected or just how they are brought about. It is not probable that one tissue or system of tissues is selected by the electricity as it traverses the body, although there may be different degrees of susceptibility. Death may be brought about by the killing of the cells in the nerve centers. The electricity in this case acting as a fixing agent, for as in histology, when certain reagents or in some cases simply their vapors are allowed to act on living nervous tissue, it not only kills, but fixes or retains the elements of the tissue in the position they held at the time of the action of the reagent.

This reaction is of a chemical nature; it probably is in the case of electricity. When properly employed the reagents cause no visible change in the form of the tissue elements, neither apparently does the electric current.

Whether this hypothesis of electric fixation is applicable to all tissues of the body, it is now too early to say, thus far it seems to be a rational one.

Such lesions as have been noted seem to be of a secondary character, such as minute effusions in the heart caused by capillary rupture due to too violent contraction; the crenated appearance of the red blood corpuscles taken from the body in the region of contact of the electrodes some seven minutes after the execution.²

While corpuscles taken one-half hour after the execution from a region further removed from the electrodes presented no abnormal appearance as to size or uniformity of outline.

² Proceed. Amer. Soc. Microscopists, Vol. XII., pp 1-34, 1891.

EXPLANATION OF PLATE.

d =dendrites.

n ?=neurite.

nl =nucleolus.

nr =neuroglia or spider cells.

ns =Nissl's spindles.

nn =nucleus.

v =vacuole.

Figs. 1 and 2. From cervical myel of case No. 2 (W. L.) Sagittal plane. Figs. 3 and 4. From cervical myel of case No. 1 (L. R. W.) Sagittal plane.

The methods used in the preparations from which Figs. 1-4 were taken, were not adapted to bringing out the appendages of the cell to any great extent. Such parts of the cell processes as are shown are undoubtedly dendritic, the neurite not appearing.

Fig. 5. Pyramidal cell from the cortex of the precentral gyre. Case No. 2 (W. L.) Formalin-bichromate-silver preparation.

A CASE OF SYRINGO-MYELIA AND ITS DIAGNOSTIC DIFFICULTIES.¹

By EDWARD C. RUNGE, M.D.

St. Louis, Mo.

THIS patient, Jacob Beun, came under my observation at the clinic of nervous diseases of the St. Louis Medical College, on January 12, 1895. He is 22 years old, a native of Holland, for two years domiciled in the United States, single, by occupation a laborer, loading and driving for stone-quarries. His family history is good as far as he knows. His father died at the age of 69; cause of death not known. The mother, *æt.* 61, four brothers and three sisters are living with the patient and are in splendid health. From the well-kept appearance of this young man we may conclude that the surroundings of his home-life are not unfavorable. As to habits, he will smoke some, and drink a glass of beer occasionally; he takes four to five cups of coffee daily but shuns tea. He gives his height as 5 ft. 6 in.; his weight, two years ago, as 130 pounds, stating that he weighs more at present. (?) His general health was always of the best; he was never sick abed, nor has he ever met with a surgical injury.

About six or seven months ago, (the chronological data being somewhat uncertain), the patient was taken with such severe pains in both ankles as to render walking very difficult. No swelling was apparent, and the pain left him gradually and completely, without involvement of any other joint. Five months ago, a red slightly painful swelling appeared at the outer aspect of his left upper arm; he experienced simultaneously some pain in the axillary region of the same side. The swelling broke down, and left three sores which healed spontaneously about three months and a half ago, leaving a scar. About three months ago, he noticed a loss of strength, and very soon after, wasting of the flesh of his left hand. After the lapse of two or three weeks the right hand proved to be afflicted in a similar way. He suffered no pain at the time, nor had he any appreciable disturbance at any time since the onset of the malady.

¹ Read [by invitation] before the St. Louis City Hospital Medical Society, *et.* February 14, 1895. With presentation of the patient.

At present he complains of great impairment of prehensile power, of occasional (rare) slight pains in his left wrist and muscles of his left forearm, of a sense of formication and coldness in both hands, of trembling of his arms on extension and prehension, of dizziness and slight headache, now and then, of muscular twitchings in arms, chest, back and neck. His lower extremities seem to him normal, except for occasional formication. He states that a pin stuck deeply into his flesh at some places on his arms, fails to produce a sensation of pain. Digestion appears normal, his appetite being good. (During his life in Holland he had been a great fish-eater). His bowels are regular. Defecation and micturition are performed normally. No subjective defects of the organs of special sense are noticed. So far the anamnesis.

On entering upon the results of the objective examination, I first call your attention to the patient's general appearance. He impresses one as being in possession of good health. His intelligence is of the average grade for a man of his walk of life. For the latter speak the ability which he has shown in mastering the English idiom in the course of two years while living amidst Dutch-speaking kinfolds, and the remarkable observing power which he manifested in discovering the localized analgesia in his arms. His eye is bright, his speech without defect. The complexion of the face and the appearance of the conjunctival and oral mucous membranes justify preclusion of an anæmic state. The body temperature taken by the mouth on the day of the first examination was 99.1° F.

The hair is abundant, no tendency to alopecia being noticeable.

The skin is of a healthy tint, and is normal, except for the two inches and a half sized scar on the external aspect of the left upper arm (at the site of the swelling spoken of above), a few small scars of traumatic origin, a patch of seborrhœal eczema on the back, and some crythematos patches on the chest; the latter are evidently due to friction as they appear frequently and disappear readily on removal of the coarse woollen garment, pointing, perhaps, to an excitable state of the vasomotor mechanism. The scars do not show any characteristic features. The nails are normal.

The glans penis and prepuce, fail to give any evidence of any past trouble.

No periosteal thickening and tenderness, no lymphatic enlargements and nodular thickenings of the nerve-trunks are observable. There is a peculiar small nodular mass to be felt near the internal head of the triceps of the left arm, which appears to be entirely independent of the ulnar nerve, the latter not being palpable.

No tenderness over spine.

The heartsounds are clear and distinct, the area of cardiac dullness being normal. The radial pulse is 88, of fair volume, soft, compressible. None of the superficial veins are engorged.

The chest expansion is 25"; the measurement being at expiration 33", and 35.5" at inspiration. The lungs are normal; the respiratory rate was at the first visit 32; subsequent examination lowered it to normal.

The abdominal viscera seem normal. The urine: passed freely (in my presence), in a good healthy stream; it was wine-colored, slightly aromatic, clear (on standing), no floating shreds, reaction acid, sp. gr. 1021, no albumin and sugar. Pupils are of equal size; pupillary reflexes for accommodation and light are lively; there is some palpebral tremor on closing of the eyelids. No contraction of the visual field was made out. Hearing responded normally to the watch test. Sense of smell is acute, so is that of taste. The tongue is slightly coated centrally, rather pale, tremulous, slight deviation from median line to the left. Its shape is peculiar, suggesting possibly a very slight diminution in size of the left half. The lips are normal. The teeth are not well kept but sound. The throat presents a normal pharyngeal reflex; during phonation the soft palate is drawn slightly to the right.

The examination of the rest of the muscular and nervous systems gave the following results:

I.—Muscular power: Lifting power is unimpaired. As to grasp the dynamometer registered: for the right hand, 95°, 80°, 75°; for the left hand, 40°, 35°, 40°. No other deviation from the normal.

II.—Motility: All movements were carefully gone through with; they were found to be normal, except for the following:

1. In the right upper extremity, deficient: Extension of three phalanges of the four fingers and wrist. Abduction and adduction of the little finger. Flexion and abduction of the wrist. Absent: Abduction and ad-

duction of middle and ring fingers. Opposition of the little finger.

2. In the left upper extremity, deficient: Flexion and extension of second joint of thumb. Flexion and extension of first and third joints of index and ring fingers. Flexion and extension of the wrist. Extension of the three phalanges of the four fingers. Abduction of thumb, index, little finger and wrist. Adduction of thumb and index. Opposition of thumb. Absent: Abduction of middle and ring fingers. Abduction of middle, ring and little fingers. Opposition of little finger.

These data point to a motor paresis of the groups of muscles belonging to the ulnar, median and musculospiral, the latter including the posterior interosseous areas.

III. Motor irritation:

1. Tremor of the tongue and eyelids.
2. Tremor of both upper extremities when extended, this being a pure exhaustion, not intention tremor.
3. The fibrillary twitchings, especially in left arm and left side of chest.
4. The patient's signature is:

Jacob Beier,

not revealing any pathological features.

5. Fibrillary contractions on mechanical irritation.

IV. Reflexes:

1. Skin: Plantar, slight. Cremasteric, evident. Abdominal, very slight. Axillary, absent. In upper extremities, absent.

2. Tendon: Patellar; right, exaggerated; left, more so. Anterior Tibial: right, pronounced; left, more so. Ankle Clonus: right, strong; left, stronger.

V. Trophic changes: No myoatrophic changes are apparent anywhere except in both upper extremities.

1. Left: The hypothenar eminence has almost completely disappeared, the thenar nearly so; there is marked atrophy of both, palmar and dorsal, interossei; less marked atrophy of the muscles of the forearm,

more of those on the ulnar side. The belly of the biceps is somewhat bulging and less firm to the touch than the right. The triceps presents signs of atrophy.

2. Right: The atrophy extends over the same area as in the left extremity, but is much less pronounced. The biceps is not bulging. Exact measurement, the limbs being held in full extension, showed the circumference of the right extremity to exceed that of the left from $\frac{1}{4}$ " to 1", the measurement having been taken at analogous points.

3. Both scapulae are quite prominent, pointing possibly to trophic changes in the rhomboid muscles.

VI. Sensation: 1. The muscular sense is perfectly preserved. No signs of any disturbance of co-ordination are noticeable. Romberg's sign is absent.

2. The tactile sense, tested with a blunt aesthesiometer with a mm. scale attachment, is entirely normal, if anything rather keen for an individual who has done some pretty hard work. The distances tested were taken from Weber's table: Tip of tongue, 1.1 mm.; palm of last phalanx, 2.2 mm.; tip of nose, 6.6 mm.; palm of second phalanx, 4.4 mm.; white part of lips, 8.8 mm.; back of second phalanx, (11.1) 11.1 to 14.5 mm.; back of hand, 29.8 mm.

3. The thermal sense, tested for cold with water at 9° C., for heat with oil at 55 to 60° C.

The following drawings (1-4) show the distribution of the areas of disturbance:

1. In the darkly shaded portions, complete loss of the sense.

2. In the lightly shaded portions, perversion of thermal sense, *i. e.* both, cold and hot, are perceived as cold.

3. In the unshaded portions the sense is normal. The loss of the temperature sense extends on the left side high up on the side and back of the neck, nearly up to the ear.

4. The pain sense, tested with a bistoury sufficiently sharp to draw blood at times.

The disturbed areas are shown in the following drawings (No. 5-8):

1. In the darkly shaded portions, complete analgesia.

2. In the lightly shaded portions, partial analgesia.

3. In the unshaded portions, the pain sense normal.

4. The back of the second and third phalanges of the



FIG. 1. Right, Posterior.



FIG. 2. Right, Anterior.



FIG. 3. Left, Posterior.



FIG. 4. Left, Anterior.

middle finger of the left hand appeared quite hyperaesthetic; this is not marked in the drawing.

The distribution of the cutaneous nerves in these drawings was adopted after Eichhorst, except that Krause's plan of distribution was followed for the back of the hands. The actual areas of disturbance were, of course, not quite as sharply defined as they appear in the drawings, still they came quite near in doing so.

VIII. Electrical phenomena:

No reaction of degeneration could be made out, but there was a pronounced quantitative change, as shown by the greatly lessened excitability of the atrophying muscles to both currents, especially the galvanic. The entire trunk and the lower extremities were gone over twice and no deviation from the normal found except in reflexes and fibrillary twitchings. Before attempting to cope with the diagnostic difficulties presented by this case, I may sum up its most salient features:

1. The patient's age lies within the bounds of adolescence.

2. No history of hereditary transmission is evident.

3. No dyscrasia of any kind is to be suspected; from a pathological standpoint we deal here with an absolutely virgin soil.

4. Not a sign of a neurosis, like hysteria, is to be made out.

5. There is no blunting of the higher sensorium, and no abnormality due to implication of the cranial nerves, except for the slight deviations of the tongue and soft palate.

6. All visceral functions are performed in a truly physiological manner.

7. The onset of the malady was rather acute, afebrile; its course rapid, painless. I question very much whether there existed any relation between the pains in the ankles experienced two months before the onset and the present condition, as the lower limbs have not developed any changes since.

8. The most striking pathological features of this case are manifested in the two upper extremities. There we have: Motor paresis, paripassu, with myoatrophic changes in strictly localized groups of muscles. Sensory changes, confined to the temperature and pain senses, over an area more extensive than the paresis, while the tactile and muscular senses are perfectly preserved. Absence of all reflexes (with increased tendon reflexes

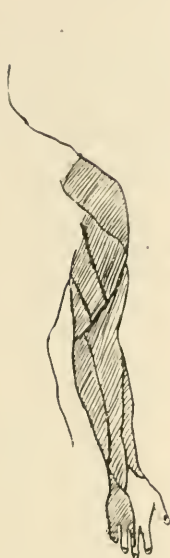


FIG. 5. Right, Posterior.



FIG. 6. Right, Anterior.



FIG. 7. Left, Posterior.



FIG. 8. Left, Anterior.

in the lower extremities). Existence of fibrillary twitchings and of fibrillary contractions on mechanical stimulation. No reaction of degeneration, but lessened excitability for both currents. This completes the clinical picture of the case. Glancing over the symptom-complex presented, we can readily see that in the absence of direct evidence furnished by an autopsy, a diagnosis is to be reached only by the "exclusion" method. In order to narrow down the issue, let us try to place our finger on that portion of the neuro-myotic mechanism which, if in some manner affected, would produce a pathological picture similar to the one before us. The seat of the mischief may be looked for either in the muscles, peripheral nerves, brain or spinal cord.

I. The muscular dystrophies are ruled out, in this instance, on the following points: their onset is gradual; the course very slow; all muscles except the small muscles of the hands are affected (to which Gowers mentions two exceptions); hereditary transmission marked; fibrillary twitchings absent; no sensory symptoms.

II. Of diseases of the peripheral nerves we shall mention:

1. Simple peripheral neuritis, the cause of which, in this case we may assume to have been exposure, as no history of trauma or pressure has been elicited. Exclusion of this condition we find justifiable on the following points:

a. In neuritis we would expect to meet with paralysis, or pains, or both; pain is hardly ever absent, particularly at the outset. There is usually tenderness of the affected nerve trunks.

b. A symmetrical bilateral occurrence would be a curious coincidence.

c. Reaction of degeneration would hardly be absent in a neuritis of such long standing.

d. Myoatrophic changes would follow the paralysis.

e. The anaesthesia would extend over the area of motor involvement and not be more extensive than the latter.

f. The anaesthesia may be partial or complete in neuritis, but it would never show the peculiar dissociation as seen in this case, *i. e.*, the profound disturbance of one set of sensations, and perfect preservation of the others.

2. The neuritis and atrophy of arthritic origin we

may dismiss at once, as there is no evidence of any arthritic disease, past or present.

3. But for the acute febrile onset, the etiological factors and diffuse nature, multiple neuritis of any toxic origin resembles the simple variety in its symptomatology, hence may be excluded on the same grounds.

4. Neuritis leprosa or lepra anæsthetica has been spoken of as producing a condition at least similar to the one before us. With this in view, I mentioned in the anamnesis the fact of the patient having been an extensive fish eater. I understand that some authors, and among them Hutchinson, still cling to this as the etiological *sine qua non* in leprosy. The features that seem to me to exclude leprosy as the causal factor in this case are the following:

a. The course of leprosy is eminently chronic, the anaesthesia creeping on slowly and insidiously.

b. At first there is extreme hyperaesthesia or some paraesthesia, and in their wake an atypical anaesthesia which does not follow the distribution of individual nerve trunks. It may be limited to the maculae or not.

c. The anaesthesia embraces all sensations, and not just one set of them (Osler)².

d. There are usually bullae and nodular thickenings of the nerve trunks.

III. Cerebral disease: That a diffuse cerebral disease is not to be thought of, is self-evident. But there may be a focal lesion, a circumscribed area of softening, of a different location, but productive of a similarly peculiar condition as the one producing the so-called pseudo-bulbar paralysis of cerebral origin (Hirt.) In brain lesions we should expect to find muscular paralysis, not accompanied, but followed by atrophy, after the former has persisted for a long time. This is, in my opinion, sufficient to exclude cerebral disease from our case.

IV. Spinal disease: Before attempting to find out the nature of the morbid process, it would seem expedi-

² To my friend, Dr. Joseph Grindon, I am indebted for having called my attention to an article on "Diagnosis of leprosy," by Dr. Morrow, in the Journal of Cutaneous and Genito-urinary diseases, January, 1890. According to him, the dissociation of sensory impressions is the most essential point of diagnosis between neuritis leprosa and syringo-myelia. In the case under his observation at the time, he noted involvement of one lower extremity. We must take exceptions to his pointing to this feature as another point in favor of a diagnosis of leprosy. A gliosis may attack, and has been known to attack any section or sections of the cord, though it is found to select most frequently the cervical enlargement.

ent to search for the focus morbi in the cord. Starr's chart has been made use of for this purpose. As there is no implication of the lower extremities, the abdomen and chest, we may exclude at once the cauda, the lumbar segments, and the dorsal upward to the third, inclusive. Thus the lesion or lesions are to be looked for in the cervical enlargement and upper dorsal segments. From the distribution of the areas of muscular atrophy we are justified in concluding that the myotrophic centers in the anterior gray horn, which have suffered, are those of the I dorsal, up to the IV cervical segment. If there really exists lingual atrophy, which as yet is demonstrable with great difficulty, we should have to look for a lesion in the bulb, in the region of the hypoglossal nucleus. The peripheral distribution of the thermal anaesthesia implicates the sensory paths of the II dorsal up to the III cervical segment, while the analgesia criminates all the segments from the II dorsal to the V cervical, on the right, and to the III cervical on the left side. In deciding upon the pathological process at work in the portions of the chord, thus localized, we are again obliged to pursue the "exclusion" method. We shall select only the processes that cause myoatrophic changes.

1. Progressive muscular atrophy of spinal origin, taken as a well-recognized pathological entity, cannot be thought of in connection with this case, if for no other reason because of the non-involvement of sensory paths in the former. On the same grounds we may exclude Poliomyelitis anterior.

2. In myoatrophic lateral sclerosis or Gowers' tonic progressive spinal muscular atrophy, the local atrophy is very similar to the one presented in this case, *i. e.* it is of the Aran-Duchenne type. Many authors, among whom we quote Gowers, Hirt, Osler and Struempell, place special emphasis on the absolute non-impairment of sensation in this disease; taking this as unassailable evidence, we should be permitted to disregard this morbid process as a diagnostic possibility. Without entering deeply into the literature, we point to Charcot and Marie's post mortem demonstration of slight changes in the columns of Goll, which, by the way, had not produced any ante mortem clinical manifestations, and to Struempell's mention of atypical cases; in the latter "beside the degeneration of the pyramidal tract, an affection of the posterior columns, and a degeneration

of the lateral cerebellar tract, have also occasionally been found." Even admitting the possibility of clinical demonstration of a myoatrophic lateral sclerosis with sensory impairment³ which, of course, would stamp Charcot's nomenclature for such cases as insufficient and misleading, we are still in position to exclude this disease, on the strength of the complete absence of all reflexes in both upper extremities. We can do this the more readily, as the exaggeration of the reflexes has been and is looked upon by most authorities as the sheet anchor in rendering a differential diagnosis between myoatrophic lateral sclerosis and progressive (spinal) muscular atrophy, *i. e.* Gowers' tonic and atonic forms of the latter.

3. Myelitis transversa cervicalis is often productive of atrophy of single muscular areas in the arms, of increased reflexes in the lower limbs, and of fibrillary twitchings. The differential points are the following:

a. The first motor symptom is, as a rule, a paraplegia of the lower limbs, followed by paralysis of the upper, and frequently by pupillary changes. (I cannot place too much stress upon the fact that in our case there is, *eo ipso*, no paralysis but a paresis due to atrophy.)

b. Sensory disturbances appear later over the same area as the motor disturbance.

c. The tendon reflexes in the upper extremities are, at first normal, later increased.

d. The sphincters usually suffer early.

e. A transverse myelitis of such a large section of the cord is bound to produce a far more complex series of symptoms than the one we have made out in this case.

4. Haemato-myelia without previous spinal disease. We exclude this on the following grounds:

a. It usually follows a severe trauma.

b. It would almost invariably implicate the upper and lower extremities.

c. Motor paralysis sets in at once and is followed by atrophy.

³ In the March issue of this JOURNAL, Dr. Lindvig Hektoen, of Chicago, reported an exceedingly interesting case of Myoatrophic lateral sclerosis with clinical manifestations of sensory involvement. He had the good fortune of having been enabled to complete the clinical picture, by careful pathological demonstration. His case may well be taken as a warning to the practical neurologist, to hold himself ever ready to relinquish or modify, at any time, his views on some of the heretofore well established clinical entities in the field of neuro-pathology.

d. Loss of sensation occurs, but hardly ever with a dissociation of sensory impressions.

e. Reaction of degeneration is made out some time after the occurrence of the appoplexy.

I may mention that the extent of the spinal lesion in this case, does not in the least militate against the assumption of the existence of a blood clot. Wilkins, as quoted by Osler, reported to have found, at an autopsy, a clot extending from the second cervical to the fourth dorsal segment, the seat of the hemorrhage having been at the level of the fifth and sixth cervical nerves.

5. Pachymeningitis hypertrophica cervicalis is, by most authors I have consulted, spoken of as the pathological process that is most apt to produce a clinical picture similar to the one presented by this case, hence I may be pardoned for entering somewhat in detail into its symptomatology.

a. Its onset is gradual, nearly always beginning with pains in the neck, shooting to the occiput and arms. The course is chronic, extending over two and three years.

b. It implicates first the upper, then the lower extremities.

c. Of motor disturbances we may expect:

Paralysis of certain groups of muscles, *e. g.* the flexors of the hands, the radial nerve usually remaining intact, hence the appearance of the main-en-griffe. The muscles of the arms and shoulders suffer also.

A spastic paraplegia is present at a later period of the disease.

Pupillary changes, contraction or dilatation are not rare.

Dyspnoea and dysphagia are met with.

d. The sensory disturbances are, as a rule, the following:

Usually pains of a severe nature.

Frequently hyperaesthesia in places, and sense of formication.

Areas of anaesthesia less extensive than the areas of muscular atrophy; the anaesthesia is irregular, and not of the dissociation type.

e. Atrophy of certain groups of muscles.

f. Increased tendon reflexes in the lower extremities.

g. Later, reaction of degeneration in affected areas.

h. No fibrillary twitchings.

- i. No bulbar symptoms.
- j. Finally, sphincter disturbances.

If we consider the large section of the cord evidently involved in this case, we should rightly expect to have the latter present this symptomatology of pachymeningitis much more perfectly than it actually does. The painless nature of this patient's trouble is quite striking. The non-implication of the phrenic is another differential point as the lesion reaches up to the III cervical segment. The anaesthesia shows distinctly the dissociation of sensory impressions. There is no pressure paresis, which would be remarkable if the pressure extended on the spinal parenchyma should be so great as to affect so rapidly and profoundly the trophic ganglionic cells in the anterior cornua.

Compression by any other cause, as for instance, a tumor, cannot possibly explain the symptoms of the case, for, under such conditions, only a small vertical section of the cord would be invalid. We must look to intracranial changes to fit this case absolutely, and the only morbid process that could result in a symptom-complex, as presented by this patient, is Syringomyelia, and as such I desire to place the case on record.

After having completed my examination, and made the diagnosis, I presented the patient to Prof. Frank R. Fry and his assistant, Dr. M. A. Bliss, who, upon the examination, reached in the main, similar conclusions.

DIPSOMANIA, ALCOHOLISM AND ITS SEQUEL-
AE, NEURASTHENIA, LOCAL AND GEN-
ERAL NEUROSES, GASTRIC AND MESEN-
TERIC DISTURBANCES, ETC.

BY WALTER M. FLEMING, M. D.

AFTER perusal of *The Quarterly Journal of Inebriety*, particularly its article on the above subject; also the article on Codeine, in the *Lancet*, by Dr. Braithwaite, conveying a very intelligible idea as to the treatment of laryngeal cough and other obstinate sequelae of alcoholism with codeine, I am constrained to submit the following sequels:

In the treatment of alcoholism and dipsomania, the physician is called to the case at the stage of exhaustion, prostration, and thereby a general derangement of nearly every function of the system. Neurosis, cerebral congestion, cardiac acceleration, gastric and mesenteric disturbance, nausea, retching, cough and irritable larynx, intolerance of food, intense irritation, insomnia, and an endless variety of morbid sequels, require prompt and efficient medical aid. All the skill and ability of the medical profession have been exercised in the past to provide a remedy which will control these deplorable maladies. The first indications are to allay the nervous agitation, morbid vigilance, cerebral congestion and gastric irritation. To fulfill this requirement a mild narcotic is first indicated; the most promising and safe one at the hands of the physician being codeine. This, combined with a reliable antipyretic and antiseptic, at once forms a remedy almost specific in this emergency.

It will be found that antikamnia in combination with codeia will give a most prompt and satisfactory response in relieving all the array of symptoms so distressing and usually so obstinate as to defy all ordinary therapeutical interference. My experience has been to

administer five grain tablets of antikamnia and codeine (viz. antikamnia gr. $4\frac{3}{4}$, codeine gr. $\frac{1}{4}$) at intervals of fifty minutes to a half hour, until three are taken, then widen the intervals to one and a half to two hours, according to the urgency of the symptoms. Under this treatment the circulation will modify, the cardiac pains will subside, the tremor, anxiety and morbid vigilance will give way to rest, quietude, calm and peaceful sleep. The nausea and vomiting together with the hacking, irritating and laryngeal cough which so frequently characterizes these cases, will also quiet down. Then after the much needed rest, the administration of some article of food, best indicated and easily digested, as broth, gruel, soups, etc. or a gelatinous food, such as calves foot jelly, tripe or pigs feet, thoroughly cooked and prepared, or the food proper may be anticipated by kumyss or buttermilk.

Under this regime, I have been rewarded with the most satisfactory results. Should the case be complicated with a rheumatic or gouty diathesis, the treatment should be followed with antikamnia and salol in tablet form, administered at intervals of two to four hours; and under the requirement of a subsequent tonic treatment the tablets antikamnia and quinine will respond in a most pleasing manner. It will be found that if the quinine be given in combination with the antikamnia, the frequent intolerance of quinine will not prevail. The antiseptic and antipyretic principles of the antikamnia supercedes the cerebral or head effect of the quinine, which often follows; thus it may be taken freely without experiencing the untoward effect from large doses of quinine; viz., vertigo, headache, roaring in the ears, impaired vision, etc. In acute attacks of laryngeal or winter cough, tickling and irritability of larynx, the faith will be well founded in antikamnia and codeine tablets. If the irritation or spasm prevails at night the patient should take a five grain tablet an hour before retiring and repeat hourly until allayed. This will be found almost invariably a sovereign remedy. After taking the second or third tablet the cough is usually under control, at least for that paroxysm and for the night. Should the irritation prevail morning or mid-day, the same course of administration should be observed until subdued. In neuroses, neurasthenia, hemicrania, hysteria, neuralgia and in short the multitude of nervous ailments, I doubt if there is one remedial agent in ther-

apeutics as reliable, serviceable and satisfactory; and this, without establishing an exaction, requirement or habit in the system like morphine or opium.

Finally, the indigestion, gastritis, fermentation, pyrosis, nausea, vomiting, intestinal and mesenteric disorders and the various diarrhoeas, the therapeutic value of the antikamnia and codeia is not debatable. Its antipyretic, narcotic and antiseptic properties are incontrovertible, and therefore eminently qualified to correct the obstinate disorders of the alimentary canal, not only allaying pain and distress, but purifying and renovating the decaying, effete matter contaminating the system from frequent indigestion and premature decay.

AN OCTOGENARIAN EPILEPTIC.

By FREDERICK T. SIMPSON, M. D.,

Hartford, Conn.

IDIOPATHIC epilepsy developing in the eightieth year of life, is so unusual that the following brief record of the history of such a case may be of interest. That epilepsy may occur late in life is well known. Hirt says, "Indeed, cases in which the first attack made its appearance between the sixtieth and seventieth years, have been reported." In Gower's 1,350 cases, four occurred between the ages of sixty and sixty-nine, and one between seventy and seventy-nine. Whether any case has been recorded so late in life as the present, I do not know, but it is evidently a rarity.

The patient was a New England clergyman, a man of heroic stature, with a rare preservation of physical and mental powers, illustrated by the fact that he continued in the ministry for fifty-five years, preaching effectively after he was eighty years old. Then the occurrence of the epileptic attacks led him to give up pulpit work, but in his eighty-seventh year he engaged in such labors as the care of the furnace, cultivation of the garden, etc.

His father died at sixty-eight, of neurasthenia; a daughter died in middle life, having suffered many years from epilepsy. With this family history, and the absence of any personal history of blow or fall, or other traumatic or reflex cause of the epileptic attacks, it seems necessary to regard this as a case of genuine idiopathic epilepsy. The patient kept a diary, noting as far as possible the time and circumstances of each attack. Altogether there were forty-four attacks, which may be tabulated in the following way:

	NO.	NIGHT	DAY
1888	1	1	0
1889	4	3	1
1890	7	6	1
1891	11	4	7
1892	8	2	6
1893	8	4	4
1894	5	4	1
	<hr/> 44	<hr/> 24	<hr/> 20

As indicated, the nocturnal form prevailed in the disease, so that for nearly two years the diagnosis was not made of its exact nature. No attack occurred in the forenoon. Practically seven-eighths of the attacks occurred between 6 P. M. and 8 A. M. There was absolutely no aura. The bitten tongue, the discharge of urine, the twisted position and disorder of the bed were often the only evidence from which the victim could chronicle the fact of another visitation.

For the first three or four years no attempt was made to influence the progress of the disorder by medicine in accordance, perhaps, with the dictum of Hippocrates, that "in epilepsy a cure may be attempted in the young but not in the old." In 1891 and 1892 bromides were used cautiously; were increased in 1893, and in the last half of 1894 chloral was added, so that the patient got about 10 grains of chloral and 40 grains of bromide daily, with a marked reduction in the number of attacks. After the last recorded attack, about five months went by without any. Unfortunately for further observation, in going down to his furnace one day, the patient sustained a bad fall, and succumbed to an attack of periostitis within a month. It would appear, however, that in cases like the foregoing, considerably larger doses of bromides and chloral can be used than are ordinarily employed.

NEW YORK NEUROLOGICAL SOCIETY

Stated Meeting, November 5, 1895.

EDWARD D. FISHER, M.D., President.

TRAUMATIC NEURASTHENIA.

Dr. C. E. NAMMACK presented a patient, a policeman, who, on October 12, 1892, had attempted to stop three runaway horses, attached to a steam fire engine, in the Centennial parade. He was successful in this, but although not physically injured, he received a profound psychic shock. One week later it became necessary for him to seek medical advice, for the relief of pains in his chest. On the advice of Dr. C. L. Dana, he went abroad, and remained there from June, 1894, to October, 1895. He had been perfectly well up to the time of this accident, and his family and personal history were excellent. He remained on police duty for some time, but found himself unable to attend to his work, even though his promotion to the rank of roundsman had rendered this less monotonous than formerly. The first symptoms noticed were diminished power of persistent application and nervous irritability. Mental exaltation then became marked, and insomnia became most distressing. Hyperaesthesia and paraesthesia were noticed. The principal subjective symptoms were pain over the heart and dyspnoea, on exertion; profuse sweating and insomnia. Examination recently showed the pain and temperature senses normal, tactile sensibility impaired, and hyperaesthesia wanting. Both visual fields showed the shifting type of contraction. Color perception was fairly good. There was no motor weakness of the eyes, and no abnormal pupillary reaction. Smell and taste were not affected; station and gait were good; there was some tremor of the hands. The knee jerks were slightly exaggerated. The heart action was weak and greatly accelerated by walking; there was no enlargement of the heart or valvular disease. Slight irritation of the

skin led to persistent redness. His weight had fallen from 220 to 175 pounds. Micturition was not vigorously performed. The urine was normal. The sexual desire was weak, although the power was good. The diagnosis in this case, the speaker said, lay between traumatic neurasthenia, traumatic hysteria and simulation. The last was excluded by the absence of motive, of striking symptoms and of efforts to exaggerate slight symptoms. Hysteria was excluded by the absence of anaesthesia, contractures, spasms, etc., and of paroxysmal phenomena. The patient had had the benefit of skilful treatment, and improvement had been slow but steady. Apparently, hydro therapy had benefited the patient the most. The case was interesting, as being free from the usual complications arising from prospective lawsuits.

Dr. C. L. DANA said that when he saw this case he made the diagnosis of traumatic neurasthenia. The case was an interesting and typical one, and was chiefly of importance on account of the absence of the complications referred to.

Dr. NAMMACK, in closing, said that formerly considerable stress had been laid upon the condition of the visual fields as a differential point between traumatic neurasthenia and hysteria, but that now this had been pretty much abandoned.

A CASE FOR DIAGNOSIS.

Dr. PEARCE BAILEY presented a man sixty years of age, a carpenter by occupation. There was no hereditary taint except that the father had had tic convulsif. The patient had been healthy up to forty years of age, at which time the symptoms referable to the nervous system first appeared. The first symptoms followed a severe shock from falling into water, and were slight headache, dizziness, impairment of memory and nausea. Twelve years ago his left leg became numb and paralyzed, and this lasted for two weeks, when it temporarily disappeared. Six years ago his right leg became similarly affected, and now one leg was as bad as the other. Two years ago his hands became so uncertain in their movements that he could no longer use his hammer. At this time he noticed that when he accidentally struck his fingers with the hammer, it did not cause him pain. He was also obliged to use a cane when walking. At the present time, there is no active pain, no trophic disturbance, and no bladder or rectal affection. There is slight roughening of the first sound of the heart. The left palpebral fissure appears to be smaller than the right, and there is slight inequality of the pupils. There is no paralysis of the ocular muscles; the optic disks are rather pale. These disorders of motion consist in a spastic and ataxic gait. The Romberg system is well marked. Fibrillary twitchings are not observed except when the arms are held out from the body for some time. The only sensory symptom of note is an almost absolute insensibility to pain all over the body. The temperature sense is retained.

The speaker said that he had been unable to classify this case.

Dr. B. SACHS said, he saw no reason why this case should not be considered one of combined sclerosis. The ataxia of both upper and lower extremities, the increase of the deep reflexes, and the marked sensory disturbances all pointed in that direction.

Dr. M. ALLEN STARR said, he also thought it was probably a case of combined sclerosis, both posterior and

lateral columns being affected. It was not usual to have a loss of the pain sense in such cases, but he thought instances of this kind had been reported.

The PRESIDENT said that the absence of the pain sense all over the body, including the head, would remove the case from the ordinary class of combined sclerosis.

Dr. JOSEPH COLLINS said that while he believed the case was one of combined sclerosis, yet it was quite possible that the entire symptom complex was dependent upon a functional condition. It must, at least, be conceded that the universal analgesia in this case is functional as no possible anatomical lesion can be postulated to explain it.

Dr. FREDERICK PETERSON said that it seemed to him that all the symptoms were those of a typical case of combined sclerosis (ataxic paraplegia). General analgesia was, of course, extraordinary, and could not be explained by combined sclerosis, but must be accounted for in some other way.

Dr. SACHS said, that admitting that the general analgesia was not common in combined sclerosis, still there might be functional symptoms superimposed on an organic condition. The walk, the increased reflexes and the moderate amount of ataxia all seemed to point inevitably to a combined sclerosis.

Dr. DANA said there could hardly be any doubt that the general analgesia was a functional condition. No such analgesia could be produced by any known organic lesion. It seemed to him to be a hysterical condition superimposed upon the sclerosis.

The PRESIDENT said that the loss of the pain sense could be explained on its functional character. The ataxia in the hand seemed to be not the ordinary ataxia, but that form seen frequently in hysteria. He had for a long time observed a case of hysterical paraplegia, in which there had been a beautiful ataxia very similar to that shown in the case before the Society.

Dr. BAILEY expressed the opinion that in a purely functional case there would be some affection of the sense of touch as well. The left palpebral fissure was certainly smaller than the right, and the left pupil was also considerably smaller than its fellow; hence, there was evidently some organic lesion higher up than an ordinary cord lesion. He had never seen a functional sensory involvement of just that character.

LUMBAR PUNCTURE OF THE SUBARACHNOID SPACE.

Dr. GEORGE W. JACOBY read a paper with this title. He said that his experience with this comparatively new method dated back only six months, but it had comprised thirty-five cases with as many as six punctures in one case. Among the cases treated were seventeen of tubercular meningitis, one of purulent meningitis, one of abscess, and three of acute mania. The operation was done between the third and fourth lumbar vertebrae in the inter-laminar space, using preferably the needless measuring of 8 cm. in length and 1 mm. in diameter, with rather broad bases so as to dispense with the syringe, which is chiefly used as a handle. The depth of the puncture and the amount of force to be used were matters of experience. If the anatomical relations were first carefully studied upon the cadaver, there was no more danger from lumbar puncture than from opening a deep-lying abdominal abscess. In a case of cerebro-spinal meningitis treated by von Ziemssen, the removal of sixty or seventy cubic centimetres at various intervals gave relief from headache for several days after the puncture. In the experience of the reader of the paper, beyond the relief of headache in cases of brain tumor, no change had been noticed to follow the puncture except in cases of meningitis. In these, general improvement was noted. That the brain pressure was actually reduced could be shown in infants before the closure of the fontanelles. In cases of brain tumor, immediately following the operation, the headache became almost unbearable for about fifteen minutes, then it gradually subsided, and there was a comparative freedom from pain for several days. He had also noticed an increase in the pulse rate after puncture, lasting twenty-four hours. In one case, a child of six years, suffering from headache, unable to stand or walk, and having bilateral choked disk, there was marked relief after removal of the fluid. It did not follow, of course, that there was any relation of cause and effect between

the puncture and the improvement. In another case, one of meningitis, occurring in a child of four years, who was in a semi-comatose condition at the time of the puncture, sixty cubic centimetres of fluid were withdrawn. The next day the temperature was almost down to the normal, and the child completely recovered in a week. It is probable that this was not a true case of meningitis. Practically, he had seen little or no benefit from this treatment in cases of tubercular meningitis. In these cases, death was due to toxines rather than to brain pressure; hence, there was an excellent reason for the removal of the fluid. Reports of cured cases of tubercular meningitis had always been doubted, but one well-observed case was known to have recovered. It had been asserted that inasmuch as ordinarily only twenty cubic centimetres were removed, it was probable that only the spinal fluid was removed, and that the communication between the spinal sac and the brain was obstructed. Puncture in cases of hydrocephalus, and the effect on the fontanelle show that the fluid can be made to pass from the spinal sac into the brain. The reader of the paper then detailed experiments that he had made upon a rabbit, using considerable pressure and a colored fluid. They showed that the communication between the spinal and subarachnoid cavity was not as free as we had been led to assume. Further experimentation, however, served to confirm what had already been known anatomically and clinically—that a free communication existed. From this consideration it was evident that we were warranted in utilizing lumbar puncture.

The value of the lumbar puncture as a diagnostic aid could not be denied. Attention must be paid to the pressure of the fluid, the presence and amount of albumen and sugar, and the presence or absence of blood or pus, and of micro-organisms, such as bacilli. Normally, the fluid comes out drop by drop, but if it is under much pressure, it may gush out. The specific gravity is not of much value, and cannot ordinarily be determined on account of the small quantity of fluid removed. The presence or absence of albumen and sugar are likely in the future to furnish important corroborative information. In brain tumors and brain abscess the albumen is only slightly increased. In the differential diagnosis between meningitis and brain tumor, the presence of more than one per mille of albumen in the fluid would

be additional testimony in favor of an inflammatory condition. It should be remembered that after repeated punctures, the amount of albumen increases very considerably. Examination for pus, blood, and micro-organisms is more important. It is hardly to be expected that tubercle bacilli would be found in the cerebro-spinal fluid, for in sero-fibrinous exudation of pleurisy it was well known that tubercle bacilli were not found. However, in the majority of lumbar punctures in cases of tubercular meningitis, tubercle bacilli have been found in the cerebro-spinal fluid. The fluid should be allowed to stand for twelve hours, and then the coagulum teased out, dried and prepared for examination in the usual way. As a rule, there are but few bacilli present. As the clinical diagnosis is difficult except in well-developed cases, it is highly important to have in this examination of the cerebro-spinal fluid an additional aid to the diagnosis. In tubercular meningitis the fluid is clear and contains tubercle bacilli; in purulent meningitis, the fluid is creamy, and contains streptococci or other micro-organisms; in brain abscess the fluid is clear and contains no micro-organisms.

Blood found in the cerebro-spinal fluid, and not due to the accidental puncture of a meningeal vessel, may be found in spinal meningeal, and an inter-ventricular hæmorrhage. The diagnosis of secondary ventricular hæmorrhage has been exceedingly unsatisfactory. Blood has been found in the spinal sac in cases of ventricular hæmorrhage. We are not justified in all cases in diagnosing this condition from the presence of a small quantity of blood in the cerebro-spinal fluid, as such contamination is often produced by the puncture. Again, in sub-dural hæmorrhage the passage of blood from the cerebral to the spinal membranes might take place. Two of the author's cases emphasised the importance of lumbar puncture when there was hæmorrhage into the spinal canal. The removal of the blood in these cases reduced the local pressure, and so at least placed the patient in a condition more favorable to recovery. In any spinal injury, whatever its nature, lumbar puncture must increase the patient's chances of recovery. In three cases of acute mania, lumbar puncture has been done. The fluid was found to be sterile.

In conclusion, the speaker said that by means of lumbar puncture cerebro-spinal fluid might be easily removed from the subarachnoid space, spinal cord and

cavities of the brain. It is only of direct therapeutic value as a palliative in reducing excessive pressure. It is very important in the diagnosis of various inflammatory affections of the different membranes, and in the recognition of hæmorrhage into the ventricles, as well as into the spinal canal.

DISCUSSION.

Dr. W. M. LESZYNSKY asked if it were necessary to use the syringe.

Dr. C. L. DANA said that the Society should express its gratitude to the author for calling attention to this subject, which had been rather neglected in this country. He had himself tried lumbar puncture on a number of cases of alcoholic meningitis, or so called cerebral œdema, but with a purely negative result. He had also found that in this class of cases lumbar puncture was not very easily carried out on account of the restlessness of the patient, and the tendency to large deposits of adipose tissue in such subjects. The operation was also quite painful. He had seen the fluid gush out in a steady stream in some cases.

Dr. STARR asked if there were any difficulty in stopping the flow of fluid. In operations on the spinal cord, he had encountered great difficulty in closing the wound, and stopping the flow of cerebo-spinal fluid. In two recent operative cases, the flow had obstinately continued, and had been associated with an exceedingly severe headache. In both of these cases the gush of fluid had been very considerable.

The PRESIDENT said that he had not always observed such a great quantity of intra-spinal fluid as had been alluded to by the last speaker. As he recalled autopsies on cases of ventricular hæmorrhage, it did not seem to him that blood in the spinal canal had been very commonly found.

Dr. JACOBY, in closing the discussion, said that the syringe should not be used at all except in those cases in which a very small quantity of fluid was to be withdrawn for purely diagnostic purposes. If the needle were simply introduced and the fluid allowed to drop away, the pressure in the spinal canal would not be dangerously reduced. The operation is exceedingly simple, but it is not so in the adults. In the latter he preferred to operate under an anaesthetic. Children should be held on

the lap with the back arched, so as to facilitate the introduction of the needle. A little iodoform collodion over the puncture was all that was necessary to stop the flow of cerebro-spinal fluid. There was no danger connected with the operation, except such incidental ones as breaking off the needle against the vertebrae. If an anaesthetic were not used in an adult, and the patient suddenly straightened out, the needle would snap off.

DEFORMITIES OF THE HARD PALATE IN DEGENERATES, WITH EXHIBITION OF CASTS.

Dr. FREDERICK PETERSON read a paper on this subject. (Only a portion of the paper was read.) He said his observations in this direction extended over a period of eleven years, and comprised examinations on upwards of one thousand persons (one hundred criminals, six hundred idiots, and five hundred neuropaths of other kinds). On account of the frequent mention of the Gothic palate, he had adopted an architectural nomenclature in the following classification which he offered :

Pathological Palates—(A) Palate with Gothic arch ; (B) palate with Horseshoe arch ; (C) the Dome-shaped palate ; (D) the Flat-roofed palate ; (E) the Hip-roofed palate ; (F) the Asymmetrical palate, and (G) the Torus palatinus. In illustration of these varieties of abnormal palate, seventeen casts of the hard palate were then presented, mostly selected from among the four hundred and fifty idiots on Randall's Island. The seven varieties are to be looked upon merely as types. Each type presents variations and combinations with other forms. Among the flat-roofed palates would be included all such as are nearly horizontal in outline, as well as those with inclined roof sides but flattened tables. In the hip-roofed palate there is a marked pitch of the palate roof in front and behind. It is usual to find asymmetry of the face and skull in cases with an asymmetrical palate. The torus palatinus (Latin, *torus*, swelling), was first mentioned by Chassignac as a medio-palatine exostosis. It is a projecting ridge or swelling along the palatine suture, sometimes in its whole length. It is always congenital, and varies considerably in both shape and size. But two or three cleft palates were found among the many idiots examined, and as a number of such palates had been found in subjects who were far from being degenerated, it was not thought proper to include the cleft palate among the well marked stigmata of degeneration.

The Committee on the Terminology of the Nerve Cell reported as follows:

The term *neuron*, applied by Waldeyer in 1891 to the nerve cell with its ramifications and processes, has been adopted by current writers on neurology and by such eminent neuro-anatomists as y Cajal, Van Gehuchten, Lenhossek, Edinger, Dejerine and others; therefore we advise that it continue to be used and understood in Waldeyer's sense, as indicating the nerve-unit. Assuming for the purposes of terminology that this cell unit be divided into—(A) cell body; (B) protoplasmic processes, including all processes except (C); and (C) axis-cylinder process with collaterals and end brushes. The term *neuron* includes A, B and C.

As a matter of convenience to the members of the Society, and as a justification, if any were needed, of the utility of the Committee's work, the following list of synonyms and proposed substitutes for the word *neuron* is given:

To indicate the *cell unit* or *neuron*:

Neuro-dendron, proposed by Kölliker.

Neura, proposed by Rauber.

Neurocyte, proposed by P. A. Fish.

Neure, proposed by Frank Baker.

The *cell*, the *neuron* and the *dendron*, proposed by Schaefer.

The axis-cylinder process has received the following names:

Neuron, proposed by Shaeffer.

Neuraxon, proposed by Kölliker.

Neurite, proposed by Fish and Rauber.

The other (protoplasmic, etc.) processes have received the names:

Dendrons, proposed by Shaefer.

Dendrites, proposed by His and Fish.

Cellulipetal processes, proposed by y Cajal and Van Gehuchten.

The Committee would recommend that the term "axis cylinder process" be still used in its long-accepted sense, to indicate part C. of the neuron. Without making the recommendation, it expresses the opinion that some word like neurite will probly came into use as a synonym for this axis-cylinder process. The Committee also recommend that the old term, "protoplasmic processes" continue to have its ordinary and legitimate use-

but express the view that the word "dendrite" will be a useful synonym.

The committee beg to express obligations to Dr. Frank Baker, of Washington, to Professor Burt C. Wilder, and to Dr. Pierre A. Fish, of Utica. Signed: Drs. Charles L. Dana, Edward D. Fisher, William H. Thompson, B. Sachs, Joseph Collins and J. Arthur Booth.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, October 28, 1895.

President, Dr. JAMES HENDRIE LLOYD, in the chair.

Dr. WHARTON SINKLER reported two cases of

CEREBELLAR TUMOR.

Dr. CHARLES K. MILLS and Dr. SYLVAN MYERS reported a case of

INJURY TO THE SKULL IN THE OCCIPITAL REGION, WITH LEFT LATERAL HEMI-ANOPSIA AND MARKED CONTRACTION OF BOTH VISUAL FIELDS.

The patient was seen by Dr. Mills in consultation with Dr. Myers. The following summary of the case is chiefly from the records of the Cooper Hospital.

E. W., aged 16 years, was admitted to the Cooper Hospital, August 19, 1895; while stealing a ride (it is claimed) on the West Jersey fast freight train, a brakeman kicked him, and he fell striking his head against the rail. He was brought into the hospital about 1 P.M.; temperature 96° F.; unconscious, badly shocked; pupils dilated; no hemorrhage from the ears, no paralysis. A large compound depressed fracture of the parietal bone was discovered.

Trephining under chloroform was performed. The incision revealed a fracture above the external occipital protuberance, and extending over the mastoid process, separating for the last two inches the lambdoid suture of the right side, and two inches of the left lambdoid suture. Brain substance escaped through a rupture of the dura. Large clots were removed from a cavity in the brain substance. The cavity was about the size of a walnut. With a rongeur forceps the trephine open.

ing was enlarged, and the edges of the lambdoid suture trimmed, as it was impossible to replace the dove-tailing. The dura was sewed with catgut and gauze drain placed in position. The incision was closed with silk worm gut and catgut drain.

August 20 (the next day).—Patient quiet, lying upon his side, pupils dilated. Asks for milk; entirely rational. Was given enema of whisky and beef tea *ziz*, every two hours.

August 21.—Somewhat brighter, knows where he is. Temperature normal. Removed catgut drain. Handles his feeding cup and can see.

August 26.—He dropped his feeding cup on the floor, and told the nurse he could not see the stand at his bedside. Unable to see fingers; does not wink when objects are brought close to his eyes.

August 30.—Some improvement; only central vision present; that is, he can only see an object when directly in front of the pupils.

September 5.—Condition same. Examination of eye-ground normal; vision $\frac{15}{20}$ for both eyes.

Dr. B. A. RANDALL made the following report on the examination of his eyes.

Right $\frac{6}{15}$; left $\frac{6}{15}$??; eyes wander out under cover; no muscular paresis noted; fixes with right eye, left usually diverging. Field for form and color central only. Neither eye-ground shows a trace of present or past neuritis, and both muscular regions, like the rest of the fundus, are devoid of visible lesions. The media are all clear. Pupils fairly prompt.

DISCUSSION.

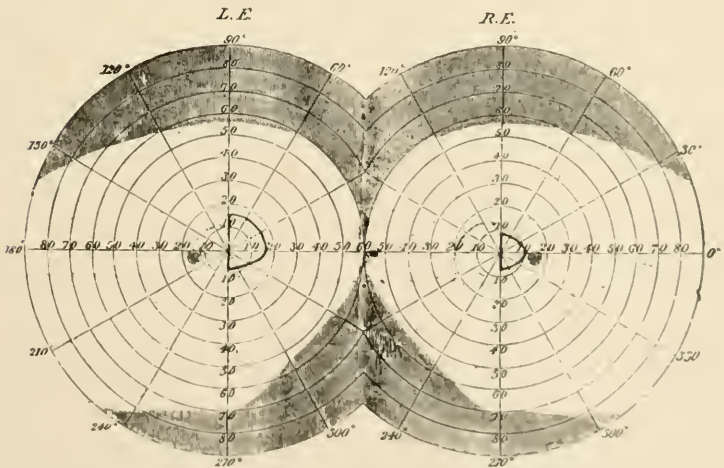
Dr. CHARLES K. MILLS.—The case is one of special interest, because the boy has but little more than central vision in both eyes, and has no nerve changes and no evidence of any conditions at the base. It seems to be a case due to lesions of both occipital lobes as the result of the injury. It is somewhat like the case of double hemianopsia which Dr. Dunn reported to the College of Physicians, in which the patient first had an attack of hemiplegia on one side and then on the other, and was left with central vision only. This boy is able to orient himself. He knows his position in a room and knows the direction of the door and other objects. In the few double hemianopsia cases which have been

reported the patients sometimes have lost the ability to orient themselves.

Dr. WILLIAM ZENTMAYER, at the request of the Society, tested the fields of vision, and reported as follows: I find that the boy has left homonymous hemianopsia. There is contraction of the remaining half field in both eyes, but greater in the left.

Dr. J. L. NICHOLSON.—The injury was decidedly on the right side. In closing the laceration in the dura mater, it was necessary to remove considerable bone to pass the needles. After the blood clots were removed, the cavity was about the size of a walnut. I might say in regard to the fields of vision that when Dr. Powell first took them, which was as soon as the eyes could be examined, there was concentric contraction. There was no lateral hemianopsia when the eyes were tested in a good light and the examination not continued until the eyes were tired.

Dr. NICHOLSON presented the following charts, as the result of the examination of the eyes made later by Dr. Powell. The pupils did not show Wernicke's inaction.



Dr. CHARLES W. BURR and Dr. WM. ZENTMAYER
gave an

EXHIBITION OF BRAIN WITH TUMOR IN THE
EXTREME ANTERIOR PART OF THE RIGHT
TEMPERAL LOBE.

A. L., female, 32 years old, unmarried. The patient was ill for about one year. She complained that she was very nervous and depressed, and in great fear of some impending evil. Some months before death she had an attack of sudden unconsciousness without convulsion, lasting about an hour. Since then she had many attacks of momentary obscuration of consciousness, and quite frequently seizures of the following character: nausea with or without vomiting, vertigo, violent throbbing in head and agonizing pain over the eyes and in the right side of the head. They lasted only a few minutes and sometimes recurred ten times in a day. At times when walking, or on starting to walk, her legs would suddenly stiffen for a minute or so and she would be unable to move. There was more or less headache, sometimes dull, sometimes excruciating, and varying in situation throughout the whole course of the illness. Patient slept fairly well. She consulted Dr. Zentmayer a few weeks ago. On examining her eyes he found: in both eyes neuro-retinitis with small hæmorrhages near the disc in the right eye; marked choking of the discs; slight contraction of the form fields; color fields about normal; color perception good; no scotoma; central vision $\frac{1}{2}$ to $\frac{5}{6}$; reaction of the irides normal; Wernicke's sign absent; no local palsies; Diagnosis, tumor of the brain. A few days later when she was seen by Dr. Burr in consultation, she presented the following condition: general appearance good; highly emotional but perfectly clear-minded; gait and station good; knee jerks normal; no palsies of arms, legs or face; sensation to touch and pain in hands, feet, and face normal; no trouble in speech nor difficulty in swallowing; hearing good; heart and lungs normal; urine, no albumin, no sugar. Two

days ago she suddenly became comatose, and in two hours died. The brain only was examined. All the convex surface was much flattened from increased intracranial pressure. The ventricles were moderately dilated; the anterior part of the right temporal lobe was the seat of a non-encapsulated growth beneath the cortex, but of such size as to distinctly enlarge the lobe; the posterior two-thirds of the lobe seem to be normal; the right optic tract was markedly compressed by the direct pressure of the tumor.

We will report further on the case, when a complete pathologic study has been made. It is interesting as an example of disease in one of the so-called silent regions of the brain, and as showing the necessity of ophthalmoscopic examination.

American Psychiatry.

UNDER THE DIRECTION OF
R. M. PHELPS, A.M., M.D.,
Rochester, Minn

With the Following Collaborators:

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EDITORIAL.

Announcement.—Our department hardly needs introductory promises. At least it seems idle to make any promises for a work that will so soon show its own merits. We claim that we are simply placing in its true position the subject of Mental Diseases; its true position as indicated by the title of this Journal and its true position as a branch under the more general heading "Neurological"—a branch that we do not hesitate to assert forcibly affects the lives and fortunes of people

as deeply and bitterly as do the remaining Neurological troubles. We have long felt deeply that clinical and pathological studies among the insane needed more of a representation, and a closer union to other medical work than they yet had.

We feel also that the "reflex" influence upon the workers will be in the form of a stimulation to farther effort and still deeper studies,—by the expression it affords of such work, by the interchange of experience and by the honoring of the deepest *medical* work. All true literary work, all society work, all medical meetings, all visiting foreign workers have these for their true aims.

Our aim then is sincere and open to all to read. Our degree of success promises, we think, to be great. If it is to be in proportion to the effort put forth, we will not be sparing of such effort. We aim in the course of the year to so have represented the entire field of work among the insane, that a good and correct idea will be afforded of its standing and progress. We believe that the "seclusion" of most hospital work among the insane is the real source of most of its annoyances and drawbacks, and that the work has much to gain by more intimate contact with the other branches of Medicine.

Although it seems desirable to begin with the current year, yet a full representation of our department could not be secured in the very short time allotted, but we believe it will rapidly attain its full growth. The workers listed above are all, we believe, earnest, active men, and give promise of a high grade of work.

Mental Ability—Mental Stability.—In entering upon this Department it would seem fitting to try and elucidate our subject ;—to try and make clear the exact extent and character of our field. Probably a smile would pass over the faces of our readers should we announce such an effort, so often have we been told that it is impossible to define "insanity," and so varied have been the attempts. And yet we venture the statement that the subject is fairly clear, as much so as most subjects.

Not that we intend to struggle much with definitions—*it is not necessary*. If pushed for definition we might say lightly that "*Insanity is such disease or defect of the Brain as causes mental manifestations so far from the normal as in good scientific judgment to deserve the name.*" We will defend this if need be, but our purpose now is merely to exhibit some useful distinctions.

First.—*Insanity* is not a well limited entity, but varies with the one defining. The lawyer's definition would usually include only those cases of so great mental change or abnormality as to be readily recognizable,—"*Knowledge of right and wrong*" is his usual boundary. The ordinary practitioner, unacquainted with insanity, only advances moderately beyond this limit,

though in the past few years a vague knowledge of "Paranoia" has been spreading. Students of insanity itself see degrees farther and finer than these, the limit always remaining hazily in the distance. Among such students, however, opinions will still differ at times, even so much so that on a witness stand two experts can call a person the one "sane," the other "insane."

How is this possible. Some of the steps are as follows:—One man will say certain senile changes, say up to the presence of definite "delusions," are not included in insanity; another will say the patient is insane as soon as "loss of memory" is noted; a third will say he is insane when the first quite symmetrical brain failure appears with its slight instability, slight lack of attention and of mental and moral tone. We have seen frequent differences of opinion, which, analyzed, were only this same *difference of standard*. Again, one may say that nearly all epileptics are insane, another that nearly all are sane. This difference of opinion is also common, and is due to the slighting or not of the symmetrical brain failure common in epilepsy: a failure so symmetrical usually as to be a quite pure mental feebleness.

Again, "defective" cases, peculiar, eccentric or dull, are often called both sane and insane. Alcoholic cases are subject to the same difference of opinion often, as indeed are *all* slowly invading mental changes.

The truth is that the Alienist who grumbles at the lawyer's arbitrary limit of "knowledge of right and wrong," has still to form for himself another fully as arbitrary limit somewhere, to prevent insanity from invading the class called sane.

But in what way need all this trouble us as scientific men and as physicians? Not at all. Once getting a grasp of the subject, it is only the *facts* we want assured, the *name* is nothing to us. The struggle to place the standard high or low, we can watch intelligently, upholding our own standard if called upon, but while maintaining our own opinion, recognizing the while the reason for others' opinions.

A finer distinction, however, is the one between "Mental ability" and "Mental stability." These do not necessarily travel together. The Mental ability of a Guiteau may be fairly proportioned to his mental stability, but many a man does good, artistic, scientific or professional work, who is mentally so unstable as to be working along the edge of actual insanity. This is proven, of course, by the past history of cases who, after lingering in an unstable condition, have finally fallen. It is said that some geniuses of the past were unstable, that indeed, the very fact of such unequal development of "ability" as by definition constitutes "genius" is an evidence of instability.

The term "Nervous Instability" has been usually used to

cover "mental instability," as well as "peripheral." Separating the two, Nervous instability would naturally cover tremors, neurasthenias, neuralgias, migraines, etc., and "mental instability" would be exemplified in hysterics, eccentricities, dullness, moodiness, hypochondrias, depressions. While the two often exist together, yet if apart, in our judgment the Nervous instability does not tend markedly to develop Mental instability, probably not so much in the individual as in the next generation. Neuralgic tendencies for example, seem to rarely indicate liability to insanity.

The trend of the year's literature seems to be toward making more prominent, clinical and pathological work. Pathological work especially seems much increased. Clinical, histological and pathological researches are yet indeed more common in the Old Country. The custodial features have been especially prominent in this country probably by reason of the rapid growth, and the building operations, involving the spending of large sums yearly at almost every hospital. The superintendents customarily take charge of the disposition of the special and of the current funds, not only sanctioning a special form of building but following it closely during its process of construction. Indirectly this may tend to help the patients. Medical research and study of the individual patient, however, —his wants, his diseases, and the character of the lesions, though denied by some, seems to us undoubtedly to tend more to the patient's benefit as well as to the scientific development of the investigator.

Mental diseases pathologically considered have a fineness of microscopical character that baffle our investigation, yet personally we are inclined to believe theoretically that a lesion temporary or permanent, exists for even so-called hysterical symptoms. By analogy and reasoning from known facts it is no more strange that a trifling habit like a toss of the head, has some cell warped to its control, than that the grosser abnormalities are produced by the grosser lesions. The word functional has only a temporary place in literature. The studies of Berkley and Andriezen, even if sceptically considered, give strength to this idea.

The place of bacteria, in mental diseases especially, is more doubtful. The studies of 1894, of doubtful significance, do not seem to have been followed up by any progress in 1895. We must simply await the outgrowth of this subject.

Dr. H. J. Berkley of Johns Hopkins Hospital seems to be coming to the front in pathological investigations of the brain. His "Finer Anatomy of the Infundibular Organs," "Gemmules by New Stain," "Pathology of General Paresis" in an early case, "Poison in Nerve Cells," are all the result of deep study and practically all in this year's results.

Andriezen in England has a very broad and ambitious article which has been reviewed by a most competent observer in this country (Hodge, *Journal of Psychology*, Oct., 1895).

The death of a patient at the Cook County Hospital, at Dunning, Illinois, and the finding of injuries upon him, probably sufficient to produce death, led to much public criticism, to the arrest and imprisonment of the attendants, and to a formal investigation by the controlling Board, which is commonly said to have been weak and ineffective. We feel the need of mentioning the case, simply to guard against a confounding of the condition of this County Hospital with the state hospitals throughout the country. It is quite differently situated; is right under the political influences of a large city, is without a medical superintendent, and is said to have only two physicians who serve for short terms and are not appointed on account of special attainments.

"The second meeting of the Association of Assistant Physicians of hospitals for the insane, was held at the Michigan Asylum for the Insane at Kalamazoo, Michigan, on October 24, 1895. The membership, originally composed of medical officials of the staffs of asylums of Michigan, Illinois and Iowa, was extended to include the medical superintendents and assistant physicians of all asylums. The next meeting will be held at the asylum at Independence, Iowa, during May, 1896."

The above notice which was handed to us, designates an Association formed last spring, and having its first meeting in May. The officers of this Asylum are to be congratulated in breaking away from customs and routine, and in having meetings which cannot fail to stir up interest and incite new investigations. The proposition to make this the nucleus of a national organization is undoubtedly wise, even if on account of low salaries, long distances, etc., the far states are little represented.

The report of the New York Lunacy Commission for 1894 is but recently to hand, inciting us to renewed wish that it need not be "Ancient literature" before coming into our hands. It is as before, however, an able resumé of hospital affairs. The ability of Dr. McDonald will hardly be criticised, even by those who criticise the invasion upon long established customs of a new centralized business-like system. He secures opinions from all the hospitals upon the ordinary so-called administrative problems, forming a consideration that as far as we know can be no where duplicated, and tending by its publicity to keep the institutions travelling more on parallel lines. Only one of its subjects we would note here; that vexed question of how to secure pathological work. Should each hospital have a pathologist; should one do for the whole State or should the various assistants be each obliged to do a certain amount? It would seem at once that it cannot be followed deeply except

one devote his especial attention to it, yet to remove this man to a central city laboratory seems to take away the incentives, and the benefits from the hospital, and to depreciate largely the results. Except compelled by economy, therefore, we would at present vote for a special combined assistant physician and pathologist in each hospital.

The great essential element of dietary in the treatment of the insane, is receiving revived discussion. The investigation of medical and scientific research and thought, involves in it the more personal essentials as well, and more truly so than does the purely custodial care. Dr. Flint's dietary put forward in reports of the New York Lunacy Commission seemed the starting point. The "Dietary of the New York Hospitals" is reported on by Dr. Pilgrim of the hospital at Willard, N. Y., while Dr. J. D. Munson, Superintendent at Kalamazoo, Mich., writes of "hospital dietaries" giving some experiences at Kalamazoo. Dr. Clark Gapen, Superintendent at Kankakee, was down for an article entitled "Scientific Dietaries for Hospitals" which has not appeared in print yet as far as we know. These papers were on the programme of the Denver meeting.

Ellen H. Richards of the Massachusetts Institute of Technology (*Journal of Insanity*, October, 1895), presents some comprehensive and corrective views, which especially call attention to the fact that the habits and customs of people break up scientifically calculated dietaries. She says: "It is not enough therefore to calculate the food value; not enough to select the best recipes; not enough to have the food prepared so as to be attractive, but the food must have a familiar look and taste, enough so, that the question will not be raised whether it is a new dish or not. A study therefore of existing habits and customs is necessary to the success of any caterer to any large body of people, especially to those who have not been accustomed to variety. If they could be fed with their eyes bandaged it would be easier."

Political use of hospital offices has doubtless received added disrepute and therefore added set-back this year. Indiana declares against it in her laws. Kansas hospitals are described as reacting from a disgraceful turmoil from political awarding of offices. The revelations at the Cook County Hospital, though it is not in the state system, will tend toward corrective measures. The State of Illinois only a few years ago, aroused general condemnation by its overturn of officials. The trend is toward better things. It is to be noted in a general way that the older and more settled states do not dare to change so arbitrarily.

The war of the sleeping doses still goes on. Sulfonal seems likely to go completely under, while chloral is the sleep-

ing dose *par excellence*, in spite of attacks made on it. Trional is quite a favorite, somnual and tetronal less so. Duboisin and chloralose are less considered.

Insanity yearly encroaches upon new ground though fought back by conservatism. Not that Nordau has made any of the great advances claimed by him, but that more criminals are adjudged insane, more cranks are adjudged insane, more paranoiacs, more senile weaknesses, adolescents, and imbecile taints are so adjudged.

The subject of *douche baths* seems on a wave of popularity, though with great vagueness in the published accounts as to whether it is for the cleanliness or the medicinal effect,—or if the latter, what the medicinal effect is that would constitute it the glory of an institution.

The tendency to *invent new names* for slight variations in mental behaviour seems failing. "Pyromania" and "homocidal mania" are both *manias* (or paranoias) and the peculiar subject selected for a delusion has no significance in our pathology or clinics. Katatonia has not been heard of this year. The hospital man knows that no two cases are alike, and no type is followed as in measles.

Boarding out of the insane and voluntary commitments have each had strong advocates, and ought each to have every chance to develop both its advantages and its faults. Dr. Warner of Kankakee is reported to have judged somewhat adversely to the voluntary commitments in Illinois.

Thyroid feeding of the insane is reported on by C. K. Clarke of Toronto as affording some temporary relief of mental symptoms, and therefore leading to a hope of more permanent change. (*Journal of Insanity*, Oct. 1895). McPhail and Bruce have reported upon the same in England.

The subject of the relations of *Bright's disease and insanity* is still kept alive. Doubtless more accurate knowledge will soon result. Urine in paresis, or the kidney troubles indicated by it, are studied this year by Bristol and Bondurant; and (as noted in abstracts) by Klippel and Aufrecht, but the results are not all in parallel lines as yet.

Ramon y Cajal is vaguely credited in various journals with a *theory of sleep*, as accounted for by the in-drawing or withdrawing of the minute fibre branches from their simple contact with the corresponding branches of the cells.

A new hospital entitled "The Western Insane Hospital" has been established by the State legislature of Illinois. A new hospital at Cherokee, Iowa, is soon to be erected. In Michigan at the upper peninsula at Newberry, a new hospital is noted as established.

Dr. C. H. Hughes writes an odd and interesting article ostensibly to show by the modern trick of using vaguely sounding

expressions (as per Nordau), that Cain was a paranoiac (Alienist A. & N., July, 1895).

ORIGINAL STUDIES AND REPORTS.

A Case of Sudden Blindness with sudden restoration of sight, and subsequent blindness of one eye. Possibly a case of double hemianopsia.

Post-mortem findings.—O. J. Widower, aged 44, weight 110 lbs., native of Norway, occupation, cook. Admitted into the Western Washington Hospital for the Insane, January 5th, 1895. During lucid intervals he gave the following history:—Father died at 82, and mother at 77. There was a numerous progeny of 13—11 brothers and 2 sisters. 7 brothers dead—4 in infancy, 1 drowned at 33, 2 unknown. 3 brothers and 2 sisters living at the ages of 46, 52, 54, and 42 and 49 respectively. Suffered an attack of cholera in Russia in 1866. Brain fever in 1868. Sunstroke in California in 1877; was unconscious 60 days and was fed with a tube. In November, 1877, was committed to Napa Asylum where he remained 9 months and then escaped and went to sea for 2 years. Married in 1880 and went to sea for another year. Kept a restaurant for several years. In 1888, while on a steamer bound for the old country, he dropped into a profound stupor for several hours, from which the ship's surgeon could not arouse him. After consciousness returned, he felt as if he had awakened from a natural sleep. The following year, in this country, he had another attack lasting three days, which his attending physician called a "Trance." Since then has had similar attacks occurring at irregular intervals.

On November 11th, 1894, he laid down for a nap. When he awoke an hour afterwards he was totally blind. Was still blind when admitted into the hospital seven weeks later; very thin, weighing less than 100 lbs., weak, restless, a poor sleeper, little appetite, and constipation. Pupils responded to light; no irritation, pain, dizziness, or paralysis. He soon improved in general health. Gained thirteen pounds in six weeks, and slept very well. During the first three months he had three or four spells of unconsciousness lasting about twelve hours. If not disturbed he slept them off and awoke as from natural sleep. But if disturbed he would jump to his feet and strike out violently with his fist. When not in these spells his mind seemed clear, and he would talk intelligently and interestingly, and was a very agreeable man in every way and very appreciative. He began to complain more or less of pain, sometimes in the back of his head and sometimes in the eye-balls. Occasionally the pain would be severe. There was no history of syphilis, but he was put on iodide of potassium ten grains

three times a day. It disagreed with him, causing tingling in his fingers, and was discontinued in four days, and began again after three weeks and was continued ten days. About a week after dropping the iodide, he noticed his sight changing slightly from darkness, as he expressed it, to milkiess, with increase of pain in back of head and eyes. This milkiess continued stationary for six weeks when he was again put on iodide in twenty grain doses three times a day, for nine days. Shortly after this, he noticed his sight getting better but the pain continued; he could detect a bright light, as a burning match or candle held before his eyes. This condition remained for a period of ten days, when, on March 25th, 1895, while saying his prayers before going to bed he noticed his sight had suddenly returned, the pain had all gone and he was so happy that he called his attendant and had a season of rejoicing with him and his fellow patients. He had one of his spells a few hours before his sight returned. The blindness had lasted four months and a half. With the return of sight his health began to fail. Stomach trouble developed with nausea, vomiting and pain, and gradual loss of flesh and strength. Opiates were required to relieve the pain. A marked feature was the intense rigidity of the abdominal walls, whether in a state of distension from gas, which was usually the case, or when not so distended. Loss of vision recurred in the right eye. The other remained normal. There was no further recurrence of the spells of unconsciousness. He died Nov. 12th, 1895, having been in the hospital ten months and seven days. His mind remained clear until within a short time of death. Diagnosis of double hemianopsia was made for the blindness, and cancer of the stomach for the later ailments.

The autopsy, made twelve hours after death, revealed a circumscribed abscess at the base of the brain, occupying the space from the pons varolii to the optic chiasm, and involving the optic tract, the crura cerebri and corpora quadrigemina. A carcinoma was found at the pylorus.

JOHN W. WAUGHOP, M. D.

The Local Treatment of Perverted Appetite.—

The following clinical note is of interest as showing that a condition, which has been believed to be dependent upon the involuntory process of brain degeneration was, at least in this case, purely local in its origin and amenable to local treatment.

The result obtained, opens a wide field for study, and suggests the possibility that in time, by more careful observation and the aid of the laboratory, coupled with definite local treatment, we may be able to eliminate a great many morbid conditions among the insane which have been heretofore considered irremediable.

E. E., an inmate of this hospital, a Terminal Dement, last

October developed marked perversion of appetite. While helping the plumber clean a sewer pipe, he suddenly began to eat the filth and feces which had collected. Though his occupation was changed soon after this occurrence, the appetite for filth seemed to increase; he was occasionally found eating his own feces, and would also walk through the ward and eat or drink from the cuspidors. His appetite became poor and he was slowly losing flesh.

About the middle of November our attention was particularly called to him, by his having an attack of vomiting and then eating the ejected material, after which he was kept in the ward for treatment and observation.

November 15th, the contents of the stomach were removed three hours after breakfast, and submitted to an examination, the result of which is given below.

Reaction	Neutral.
Pep-in	Absent.
Gastric Juice	Absent.
Urea	Absent.
Biliary Pigments	Absent.
Milk Curdling Ferment	Present.

Microscopy: Molds, fibrinous bands, mucus plugs, degenerated epithelium, muscle fibers, starch granules, emulsified fats. A variety of bacteria, among which are tubercle bacilli.

The stomach was washed out with warm soda solution daily, and three minims of hydrochloric acid combined with ten minims of tincture of nux vomica were administered thirty minutes before meals.

Examination of the stomach contents November 19th, one hour after Ewald's test meal gave the following results:

Reaction	Acid
Acidity neutralized by a $\frac{1}{2}\%$ solution of sodium carbonate.	
Gastric Juice	Present.
Milk Curdling Ferment	Present.
Peptones	Trace.
Starch	Present.
Sugar	$\frac{1}{2}\%$
Albumen	2%

Microscopy: Undigested starch granules. Tubercle bacilli.

The treatment was continued, and November 23d the stomach was more thoroughly washed with several quarts of warm soda solution and the patient placed in charge of a nurse who was directed to prevent his getting anything to his mouth. In one and a half hours he was given Ewald's test meal, which was removed one hour later and examined with the following results:

Reaction	Acid.
Pepsin	Present.

Milk Curdling Ferment	Present.
Peptones	Present.
Starch	Present.
Sugar	Present.
Albumen	Absent.
Hydrochloric Acid	Present

Acidity neutralized by a $\frac{1}{2}\%$ solution of sodium carbonate.

Microscopy: Partly digested starch; no tubercle bacilli.

Lavage was discontinued November 25th, but the hydrochloric acid and tincture of nux vomica was continued ten days longer.

At present the patient's appetite is good, and he has gained several pounds in the last seven weeks. During the last four weeks he has worked with the plumber, but has shown no disposition to eat filth; neither has he, while in the ward, manifested a desire for the contents of spittoons.—WALTER H. DARLING, M.D., *Asst. Phys. service of Dr. Tomlinson.*

Two Autopsies on Insane Persons, with interesting features.—J. G. Admitted Easter Mich. Asylum, Sept., 1892. Age 61; single; education, *nil*.

Hereditary history:—Father intemperate, subject to excesses; mother hysterical; parents were thought to be cousins. One cousin insane.

Previous history:—At the age of nine months right infantile hemiplegia, cause unknown. History previous to onset of hemiplegia not ascertained. Development, physical and mental, slow and imperfect. At the age of ten years convulsions of an epileptiform type appeared, primarily limited to the paralyzed parts; later became general. Mentally, condition corresponded to a general enfeeblement. At the age of thirty-one, often became violent, and this, with an increase of irritability, necessitated his commitment to an asylum.

Examination on admission:—Effects of old right hemiplegia, with consequent spasm of arm and leg. General atheroma. Mental condition indicated a degree of dementia such as is ordinarily seen in cases of this kind. Symptoms of exhaustion with intestinal obstruction appeared in October, 1895, death occurring three weeks afterward.

Autopsy:—Weight of encephalon thirty-three ounces. Cerebellum, pons and medulla, five and a quarter. Left hemisphere ten ounces. Right hemisphere seventeen and three-quarter ounces. No asymmetry of skull noted. Adhesion of dura mater along the margins of longitudinal fissure. Disparity in size of hemispheres marked. The convolutions of left hemisphere deformed, of deficient depth; atypical both on outer and medial surfaces. Convolutions in parietal lobe were sunken and badly formed—pronounced atrophy. Cystic condition present (probably hemorrhagic), occupying upper two-

thirds of ascending frontal and parietal convolutions and involving a portion of paracentral lobule. Lateral ventricle considerably dilated, a portion of its roof being formed by the floor of the cyst. Right hemisphere normal in convolutional development. Fissures regularly marked, and easily determined. Left crus smaller than its fellow. Pons, medulla and cerebellum normal. Arteries of brain atheromatous. Fibroid degeneration in kidneys and spleen. Heart abnormally small—weight six ounces. Walls thin, consistency lessened.

W. C. Admitted E. M. A. March, 1889. Age 60; education limited. Hereditary history unknown.

Previous history :—Used alcohol to excess. At the age of forty, convulsions of an epileptic character appeared and continued without unusual symptoms until the age of 58. Periods of excitement and confusion then occurred after a series of convulsions.

Examination on admission :—Symptoms of general atheroma present; senile changes existed corresponding to a later period of life. Mentally, condition one of dementia.

During residence in the Asylum convulsions of an epileptiform character occurred, and during the latter years of his life were infrequent. On November 23, 1895, he suddenly became stuporous; this gradually deepened. A few hours afterwards there was paralysis of the left arm and corresponding side of face, with deviation of head toward unparalyzed side; conjugate deviation of eyes present. Pupils contracted; no reaction. Reflexes, superficial and deep, equally exaggerated. A short time after onset of trouble he became completely comatose, and the left leg was paralyzed, as indicated by its extremely flaccid condition. Breathing irregular and spasmodic. Death occurred six hours after onset of trouble.

Autopsy :—Considerable vascularity of scalp. Dura mater firmly adherent to skull, slightly thickened and deeply injected.

Some adherency at margins of longitudinal fissure. Cerebrospinal fluid excessive. On lifting the brain from its situation in fossæ there was a large amount of effused blood in posterior fossa (estimated three ounces). This was limited to this region. Brain was then lifted from its cavity; the entire right lobe of cerebellum was disintegrated, and contained a large blood clot. This involved this hemisphere alone, but it had evidently exerted pressure upon the medulla and medullary centers. The clot being washed out, it was found to be contained in a well-marked cavity. Evidences of infiltration involving entire lobe were however present, with pronounced softening of involved area. Cerebral arteries, both cortical and ganglionic, were quite atheromatous. The source of the hemorrhage could not be definitely ascertained. From the condition present, and from careful dissection, it was probable

that the hemorrhage occurred from rupture of one of the branches of the superior cerebellar artery. Weight of encephalon forty-nine and a half ounces. Right hemisphere twenty-two and a half; left hemisphere twenty-two. Cerebellum, with pons and medulla, five ounces. Dissection of the brain showed no abnormality except a slight sub-cortical softening in left parietal lobe.

A large amount of fat was distributed over body in usual situations. Heart abnormally large—weight sixteen ounces. Some calcification in mitral valve. Aortic valve large, thickened and calcified. The entire aorta showed signs of deep atheroma.

IRVIN H. NEFF.

According to Various Accounts and well stated finally by Dr. M. J. White, Supt. Milwaukee Hospital, at Wauwatosa (*Journal Insanity*, Oct., 1895), the insane of Wisconsin have no well authorized legal methods under which to be committed. The circuit court about one year ago, declared the old law unconstitutional, as not securing to the defendant opportunity for hearing and defence. Though the matter has not been passed upon by the Supreme Court, some judges have refused to act, and considerable confusion exists. A new law was placed before the last Legislature but failed of passage.

In comment upon the above, including the proposed new law, we cannot but deplore the tendency very evident, to put the insane man in exactly the same position as the criminal, (perhaps a murderer). It only needs in addition the still too common practice of arrest by Sheriff, and confinement, pending trial, in jail or station house, to complete the analogy and produce distress and confusion in the patient's mind, and weird distorted ideas in the minds of the relatives and general public.

Is all this necessary? We must needs admit that a legal sanction to a commitment is necessary to conserve legal rights, but need it be a criminal commitment? Should we not name and truly make this so-called "warrant" only a *placing under guardianship*; see that the patient is handled only by nurses, or friends if possible (except against criminal acts); taken to a hospital, or if necessary, temporarily to some private house agreed upon for such use; and named and called only "patient" and not "defendant"? Thus we will make essential and much needed advance.

PHELPS.

ABSTRACTS.

Rest and Exercise in the Treatment of Nervous and Mental Diseases.—By T. S. Clouston M.D., and J. Batty Tuke, M.D. (*Journal Mental Science*, Oct., 1895). This is in the form of a debate, Dr. Clouston favoring "exercise," and Dr. Tuke favoring "rest" as a most import-

ant element in treatment. Dr. Clouston defines rest as the cessation of previous work, overwork or weakness, and exercise as a positive healthful activity in any organ. In insanity the natural cravings for rest or exercise being gone, the physician's judgement must decide for the patient. Then again, the exercise of one brain centre may bring rest to another, or a muscular activity may mean rest to the brain. The older ideas kept the insane locked up, confined, drugged, and to that extent, at least, a rest. More recent opinions prescribe working, walking, dancing and massage. In the majority of cases this latter works well, tending to produce sleep, to quiet excitement, to improve the action of the kidneys, liver and skin, and to increase the circulation of oxygen in the blood. It also makes patients forget their morbid thoughts. A case is cited in which enforced rest produced excitement, which when met by exercise was again quieted. For extreme exhaustion and neurasthenic states, rest may, however, be good. Massage is not so powerful as open air exertion. Evidence corroboratory is claimed in the tendency of exercise to relieve the overworked brain for the sane man. The very old, the paralyzed, and a few cases, supersensitive to slight impressions, he would also put in bed, but believes most patients to do better with free exercise. As to the recent nerve cell studies of Hodge, Mann, and others, admitting their force, it is still doubtful if the brain is not rested better by muscular exertion.

Dr. Tuke, in advocating the other element—"rest," first calls attention to the recent histological studies of Golgi and Ramon y Cajal, the complex system of cell bodies, axis cylinders, and protoplasmic processes; to the functioning by simple contact, and the varied commissural relations of the neurons which make resulting diseases very complex. He also calls attention to the occasional very rapid toxic action on the cerebral tissue, which tissue must be regarded as open to one, few or many of the various pathological causes. The over exercise of the cortex by constant stimulus, producing hyperemia; the consequences on the cell and lymphatics, are outlined as proceeding to a rapid degeneration of cell integrity. The patient is a sick man.

The brain condition lowers the tone of the general system, as brain function regulates "general trophesis." Such a patient requires reduction of stimulus, and conservation of nervous energy. The results of forty cases of recent and incipient insanity in the author's practice are given, showing 90% of cures by this method. Even admitting these cures to be selected and hopeful, he would claim the rapidity of cure very notable.

The Effect upon Mental Disorders of Inter-current Bodily Disease.—I. Goodell, M.D., M.R.C.P., and F. St. John Bullen, M.D., (*Journ. Mental, Sci., Apr.*,

1895). The authors in this article gather together some of the hints in the clinical and experimental work of others, that indicate that an effect is produced upon mental disease by bodily ones. They begin by referring as a key-note to a prophetic remark of Dr. Clouston's "to the effect that we shall some day be able to inoculate a septic poison, and get a safe and manageable counter irritant and fever by means of which acute attacks of insanity will be cured."

They begin by referring to the once prevalent counter-irritant methods as having been of little avail. In literature they find a diversified list of bodily disorders mentioned as curative at times. Acute infectious fevers, typhoid, erysipelas, ague, cholera, acute rheumatism, pneumonia, pleurisy, gout, asthma, influenza, cellulitis, and carbuncles. Also that some of these are claimed as more curative against special psychoses than against others. They refer to the recent reports of MacPhail and Bruce upon the action of Thyroid extract, the resultant fever following the remedy, producing somewhat of curative effect. They think possibly however that the "circulating toxine" might cause both the mental alteration and the fever.

The observations upon the curative effect of erysipelas on a case of epilepsy, as reported by Lannois, is referred to; also the curative effects of cellulitis in some cases noted by the writers. The probability of any "antitoxin" effect is deprecated. and as more probable is advocated the "modification in the nutrition" of the cerebral tissues—an increased metabolism, quickened circulation, and increased activity of depurative function.

The authors note however the recent claims of Bianchi and Picinino to have found a bacillus in acute delirium; of Pianese, a bacillus in chorea, and of Pelizzi, a coccus in Haematoma Auris. Also to the recent studies of the effect of injections of the urine of the insane into animals, the urine of the maniacal producing excitement and of the melancholiac producing depression. No conclusion is reached by the paper. Comment is made at the close, on the value of the now improving methods of study, and on the value of combined laboratory and hospital work, and on the concentration of attention upon the acute insane.

Analysis of One Hundred and Fifty-Six Admissions to the St. Lawrence State Hospital, with Especial Reference to Acute Insanity.—J. M. Mosher (*Medical Record*, Dec. 14th, 1895). The author of this admirable clinical digest of cases here separates the curable cases from the incurable, and gives the results of the hospital treatment of them, with historical sketches of some

special cases. As the record is made immediately after the admissions of the later cases, the results are imperfect.

He first separates the psychoses or curable forms, numbering them as 59 only, in the total of 156 consecutive cases. He excludes imbeciles, chronic delusional insanities, organic forms, recurrent forms (those having as many as three attacks), and senile and atheromatous forms. Of the fifty-nine cases selected, twenty-two are still uncertain, twenty-five have recovered, six have died, two have become chronic, and four have been discharged improved. He enumerates nine cases of "acute delirium" (probably not all would agree on the name), with five recoveries, two of doubtful prognosis, and two cases too recent for definite result. He reports five cases of "acute stupor," of whom three recovered and two died. There were twenty-three cases of "acute melancholia," with eight recoveries and three deaths; two improved and remainder undecided. Of acute mania there were sixteen cases, five recoveries, one death, and the rest in undecided condition. Of the six subacute cases, two are recovered.

The added accounts of special cases are useful in showing the acute character of the disease, and the great activity needed in studying and treating these troubles. Incidentally also, it shows a high grade of care and a thoroughly intelligent study of cases in this particular hospital. He concludes; "In some measure is revealed the great demand made by the recoverable class of patients; the need of close physical diagnosis, of the arrangement of the wards for isolation and separation of disquieting elements, refinement of diet and skillful attention of qualified trained nurses. The success has been encouraging, and the results justify the still greater development of the medical work of the institution.

A Rapid Method of Making Permanent Specimens from Frozen Sections by the use of Formalin.—By Thos. B. Cullen, M.B., (*Johns Hopkins' Bulletin*, Apr., 1895).—The author describes a seemingly very desirable method of making frozen sections permanent, by means of Formalin, which hardens tissues so rapidly and with so little distortion. He conveniently summarizes as follows:—

- a. Place the frozen section in 5% Aqueous solution formalin for from 3 to 5 seconds.
- b. Leave in 50% alcohol for 3 minutes.
- c. In absolute alcohol 1 minute.
- d. Wash out in water.
- e. Stain in Haemotoxylin for two minutes.
- f. Decolorize in acid alcohol.
- g. Rinse in water.
- h. Stain with eosin.
- i. Transfer to 95% alcohol.

j. Pass through absolute alcohol, then through either creosote or oil of cloves, and mount in Canada Balsam.

By using 3 hours instead of 3 minutes a small piece of tissue can be hardened first and then passed through as before.

PHELPS.

NEWS AND MISCELLANY.

The Association of Assistant Physicians of Hospitals for the Insane.—The need of an association for the assistant physicians of asylums for the insane, has been obvious for a considerable period of time. The assistant physicians of an asylum, as a rule, have their duties confined to the institution which they represent, and for the most part are deprived of the benefit which comes from visiting similar institutions, and the interchange of opinions with their respective staffs.

Influenced by these ideas, and finding the majority of superintendents heartily approving the plan, an initial meeting was held at the Illinois Eastern Hospital, Kankakee, Illinois, May 2nd and 3rd, 1895. It being deemed advisable that at first the membership should be restricted; invitations were sent to staffs of the State asylums of Illinois, Michigan and Iowa. The number attending and the interest manifested, placed the association on a firm footing and predicted a rapid growth.

Most of the time of this meeting was necessarily taken up with business matters. A good portion of the time, however, was spent in reading papers, informal talks, and visits to the wards of the asylum.

The second meeting of the association was held at the Michigan Asylum for the Insane, Kalamazoo, Mich., October 25th and 26th, 1895, and proved profitable and instructive in every respect.

The need of such an association being established, and its growth being apparently assured, the membership was extended and the invitation made general. The third meeting of the association will be held at the Iowa Hospital for the Insane, Independence, Iowa, during May, 1896.

IRWIN H. NEFF, Secretary.

We are in receipt of a communication from Clark Bell, Esq., Sec. of the N. Y. Medico-Legal Society, which seeks to counteract the Editorial note of the Oct. No. of the *Jour. of Mental Sci.* This note characterized as a "Monstrous Suggestion" the amendment to the N. Y. Law for commitment of insane, proposed by Albert Bach. The proposed amendment was rejected by the Society in the place of being accepted. The wording of the account in the Bulletin of the Psycholo-

gical Section is, however, such as to be easily misconstrued, and the blame seemingly should be somewhat divided. The article ends "the proposed amendment is as follows" and gives no later explanation, though on a previous page, it gives some resolutions of the Society, and speaks of a "decided sentiment among the members of the committee as to the propriety or utility at this time of approving the amendment."

A Training School for Nurses was inaugurated at the Connecticut Hospital for the Insane at Middletown, on Oct. 17th last, and has encouraging prospects. Methods adopted do not vary much from those current. Admission is made voluntary; a two years course adopted; the course covers general nursing, yet aims at results of immediate practical value to the Hospital. The interest so far is reported as very good. Text-books are loaned to students and lectures given by the staff.

Dr. L. Pierce Clark has resigned his position as Asst. Phys., at the Conn. Hospital for the Insane, and has accepted an appointment at the Craig Colony for Epileptics at Sonyea, N. Y.

Dr. E. A. Down has formed a class of patients at the Retreat for Insane, Hartford, for practice in Calisthenics, Swedish Movements, etc.

At Independence, Iowa, Dr. Voldeng, for a long time Asst., and Dr. Wells, resigned their positions and went to Germany to study. In reorganizing, Dr. Doolittle becomes First Assist., Dr. Boody of Kankakee, second, Dr. Barret third, and Dr. Mackin fourth.

The appointment by competitive examination of internes for the State Hospitals for Illinois last year was noted and commended as a right beginning by Boerne Bettmen, (*Jour. Am. Med. Assn.*, June 29.)

In Illinois a new Hospital called the Western Insane Hospital has been created by the last Legislature. A new Hospital is soon to be erected at Cherokee, Iowa. In Michigan, a new Hospital is located at Newberry, and is, we believe, much nearer completion. In Minnesota, a Fourth State Hospital was recently decided to be placed at Anoka, 20 miles from Minneapolis.

In the "Alienist" and "Neurologist" are given the following questions as constituting the competitive Civil service examination for the position of Superintendent in the State of New York. New York is trying openly, certain newer methods, with the avowed purpose of obtaining higher and more business-like results. All will watch with interest the huge object lesson, and as usual, profit by both its successes and its failures.

1. Describe the motor tract of the brain through the brain and the medulla.
2. Of what is the quadriceps extensor formis composed?
3. Describe the course of the internal carotid on both sides of the body.
4. Give in detail (*a*) by what means albumenoids are digested, (*b*) starch, (*c*) how fats are absorbed.
5. Explain as far as known how the bodily heat is regulated.
6. Give a test for the detection of hydrochloric acid in the stomach contents.
7. How would you test a specimen of urine for (*a*) bile, (*b*) glucose?
8. What is acetone?
9. Describe the physiological action of (*a*) digitalis, (*b*) nitro-glycerine.
10. Give the therapeutic uses of ergot and the symptoms of ergotism.
11. Give the etiology and symptoms of cirrhosis of the liver.
12. Give the etiology, pathology and treatment of multiple neuritis.
13. Describe in detail a case of syphilitic gumma of the base of the brain.
14. Give a full description of your ideas or the arrangement and classification of a hospital for the insane, having a capacity of 1,600 beds.
15. What would be your daily allowance of the staple articles of food per capita in such an institution?
16. What are the prerequisites to the admission of a patient to said hospital.
17. Give the prognosis and symptoms of puerperal insanity.
18. How would you treat the eclampsia of pregnancy?
19. Give the prophylaxis and etiology of ophthalmia neonatorum. How would you treat a case?
20. How would you treat fracture of the neck of the femur?
21. Give the indications for trephining the skull.
22. How would you treat a case of erysipelas?

Harry Hayward was hung at St. Paul, Minn., Dec., for the cool, long premeditated murder of a young woman, in order to secure the \$10,000 insurance money on her life. The lack of apparent emotion under the most trying circumstances, led even the newspapers to wonder if he were insane, the claim having been hinted at by several physicians of eminence. A judicial medical opinion will likely follow; but it was notable that the idea of insanity was entertained by the people on such slight foundations.

At the Annual Meeting of the British Medico-Psychological Association, it was proposed that it was expedient and right that one of the editors of the Journal of the Asso-

ciation should be an assistant medical officer. This was voted down on technical grounds without any expression of disapproval.

At this meeting also, steps were taken toward securing gratuities or pensions to the widows or orphans, or employees killed or fatally injured in the discharge of their duties. This seems to be strictly in addition to an annuity system.

Certificates of proficiency are issued after examination, to such attendants as pass successfully the questions asked. These secure certain privileges and advantages and seem much sought for.

The Investigation of the Cook County Hospital, following the death of a patient, with injuries probably obtained in a struggle with attendants, deserves notice sufficient to point out that this is not one of the State system or hospitals, but belongs to the county, right under the full political influences of a large city, without a medical superintendent, and said to have only two assistant physicians, who are not appointed because of experience in the work.

Periscope.

HISTOLOGICAL ANATOMY.

“*Beiträge zur Kenntniss der normalen menschlichen Neuroglia.*”—Carl Weigert, Frankfort, A. M., 1895.—After seven years of careful study, with a method which will be of the greatest use for anatomical and pathological anatomical studies of the central nervous system, the author makes known his method of procedure in staining the neuroglia of the central nervous system.

Hardening :—Pieces of tissue taken from the central nervous system in its fresh state, and which should not be over one-half centimeter in thickness, are placed for a few days in a 10% solution of Formol.

Maceration or Soaking :—This solution consists of a mixture of 5% Cupric Acetate, 5% Acetic Acid and 2½% Chrom Alum in water.

The Chrom Alum is brought to a boiling point in water, and to this is added the finely pulverized Cupric Acetate and the Acetic Acid. In this solution, the pieces which have been hardened in Formol are kept at a warm temperature, best in an oven (warming) four to five days, and eight days at the temperature of a room.

The hardening and maceration can be accomplished together by adding the 10% Formol to the copper-chrom-alum mixture. In this copper-chrom-alum-formol mixture, the specimens are kept at the temperature of a room at least eight days.

Carefully wash the specimen in water, dehydrate in alcohol, and embed in celloidin. The specimen is now ready for cutting.

Reduction :—The cut sections are now placed for ten minutes in a ½% solution Potassium Permanganate, and after carefully washing in water are treated to a solution of chromogen-sodium-sulphite. This solution is made as follows :—5% chromogen and 5% Formic acid are dissolved in water and then filtered. To ninety ccm. of this solution 10 ccm. of a 10% solution of sodium sulphite are added. In this solution the cut section remains 2—4 hours.

To obtain a deep blue stain of the neuroglia fibres, and as contrast, a yellow coloring of the ganglion cells and axis-cylin-

ders, the cut sections are immersed over night in a saturated solution of chromogen in water.

The staining is similar to the author's fibrin method with the following modifications ; Instead of the water solution of Methyl-violet, a hot saturated solution of the same is taken. This is allowed to cool, and upon the sediment is poured alcohol (70%). To every 100 ccm. of this solution there is added 5 ccm. of a 5% water sol. of Oxalic Acid. The anilinoilxylol solution differs, in that equal parts are taken of anilin oil and Xylol. The sections before they are mounted in Canada balsam are carefully washed with Xylol pura.

The conclusions which the author deducts, and his reason for arriving at the same, with reference to the anatomical structure of the neuroglia fibre, together with full information in regard to the explanation of his method of staining the neuroglia fibre, should be read in the original article. WIENER.

EXPERIMENTAL PHYSIOLOGY.

The Results of Section of the Trigeminal Nerve, with Reference to the So-called "Trophic" Influence of the Nerve on the Cornea.—William Aldren Turner, M.D. (*British Medical Journal*, November 23, 1895).

In the series of experiments performed by Dr. Ferrier and the author, the fifth nerve trunk, its ophthalmic branch, and the intramedullary roots were divided. The series consisted of four experiments, involving destruction of the tubercle of Rolando, two of section of the restiform body, including the ascending trigeminal root, four of section of the trunk of the nerve between the Gasserian ganglion and the surface of the pons varolii, eight of the ophthalmic branch alone, and two of the descending or trophic root of Merkel.

Of the eighteen experiments in which anasthesia of the cornea was the prominent symptom, two only showed symptoms of distinctive change and panophthalmitis.

There was also noticed in many of the cases a slight corneal opacity, which showed no tendency to progress, but rather to diminish as time went on after the operation. This the author explains, as due to non-approximation of the lids and a consequent drying of the corneal surface. In the majority of the cases no opacity or ulceration was noticed.

In these cases in which the ophthalmic branch was divided, only one showed distinctive corneal change, and here there was post-mortem evidence of septic meningitis.

In another case, on the fifth day after section of the right ophthalmic branch, both corneæ were touched with lunar caustic. Corneal ulcers formed in both eyes, and the process of repair proceeded as well on the right side as on the left.

In another case, when division was practiced behind the Gasserian ganglion, an irritant, in some way, had entered the eye. Conjunctivitis, œdema of the lids, and a milky white corneal opacity resulted. After a week's duration, the inflammation subsided, and disappeared at the end of a fortnight, with the exception of a small central ulcer which remained.

These last two cases, the author claims as proving that, whether the trunk of the nerve be divided behind the Gasserian ganglion or whether the ophthalmic branch alone be divided, the processes of healthy nutrition and repair go on notwithstanding the anæsthetic state of the cornea.

In two cases the descending trigeminal root or trophic root of Merkel was divided in conjunction with the superior cerebellar peduncle. No trophic disturbance was noticed.

The general conclusion which the author draws from these experiments is, that there is no evidence of trophic influence exerted by the Gasserian ganglion upon the cornea; and provided that septic organisms are excluded, the ophthalmic branch may be safely divided, or the Gasserian ganglion removed without fear of disorganization of the eye.

The destructive changes which occur with inflammatory conditions of the basal meninges, without the existence of an external wound, would seem on this hypothesis to be due to the presence of conditions causing inflammatory irritation of the nerve.

The so-called neuroparalytic phenomena, associated with lesion of the trigeminal nerve are evidence of irritation of the nerve and not of paralysis.

WEINER.

Influence of Sensory Nerves upon Movements and Nutrition of the Limbs.—Mott and Sherington. Proceedings of the Royal Society, vol. LV., p. 481, 1895.

Experiments on monkeys, seem to show that afferent impulses from the periphery are indispensable to the performance of motor acts. In monkey No. 1, all the posterior roots from the fourth cervical to the fourth dorsal nerve were divided, the motor roots remaining intact. The movements of the hand are thus almost entirely abolished. The elbow and shoulder are less impaired. Some associated movements are but little affected. In monkey No. 2, the posterior roots were divided as before, with the exception of the eighth cervical, which is distributed to the hand. In this case the movements of the hand were but very slightly affected. The brain was exposed, and the motor areas stimulated, muscular responses were obtained in the muscles of the affected limb, evidencing absence of degeneration in the motor tracts and nerves.

MEIROWITZ.

The Results of Experimental Destruction of the Tubercle of Rolando.—By W. A. Turner. *Brain*, 1895, Parts LXX and LXXI.

A number of experiments on monkeys in which the tubercle of Rolando was destroyed, gave the following results:—A. Diminution in the sensibility of the parts on the side of the lesion, supplied by the trigeminus. B. Alteration in sensation of both sides of body and extremities. The cornea, skin, and mucous membrane supplied by the trigeminus, showed defective or absent sensation. The destruction of the ascending root of the fifth cranial nerve where it lies upon and forms the superficial white stratum of the tubercle of Rolando was responsible for the loss of sensation. Contraction of the pupil on the side of the lesion was observed, and after one experiment narrowing of the palpebral fissure on the corresponding side became manifest. The experiments establish the existence of pupil dilating fibres in the ophthalmic branch and sensory root of the fifth cranial nerve.

B. The sensory changes in the body were found on the side of the lesion. Sense of touch and of localization seemed to have disappeared. Sense of pain not destroyed. On the side opposite the lesion, sense of pain was diminished or lost, whilst the sense of touch was unaffected. MEIROWITZ.

PHYSIOLOGICAL.

On the Nausea and Vomiting produced by Morphine.—L. Guinard. *Lyon Medical*, Sept. 8, 1895.

In discussing the causes of the nausea and vomiting produced by morphine, the author mentions and refutes the various theories that have been put forward to account for these manifestations. The transformation of morphine within the organism to apomorphine; the interference with gastric digestion by the drug, which allows the undigested food particles to act as foreign irritants to the mucous membrane; stimulation of the sensory nerves of the stomach, following the elimination of the drug by this organ, *i.e.*, a vomiting by reflex action, all are in the opinion of the author fallacious. He regards the essential cause of morphinic vomiting as *an immediate irritation of the vomiting centre*, as in the same manner as is produced by apomorphia.

Large doses are less likely to cause vomiting than small ones, since they paralyze the vomiting centre, whilst small doses of morphine stimulate it. MEIROWITZ.

CLINICAL.

On Endothelioma of the Spinal Dura Mater, with a Case in which an Operation was Per-

formed.—By J. Mitchell Clarke (*Brain*, Summer and Autumn, 1895).

Dr. Clarke reports the following case of endothelioma of the spinal dura mater :

A. P., aged 28, a bootmaker, complained of loss of power in the arms and legs. Personal history negative. The disease began with twitchings in the hands and a difficulty in handling small objects. These symptoms grew steadily worse and the muscles of legs and arms slowly wasted. There was no pain ; sensation to touch, temperature, pain, etc., was absent in some areas, while other parts presented the sensory disturbances exactly as they are found in syringomyelia.

Symptoms on admission of patient to hospital, April, 1892: He walked badly, dragging the left leg. Romberg's symptom was present. Left hand was paralyzed and wasted. Anæsthesia and partial loss of sensation over each forearm and outer side of arm. The legs were rigid, knee reflexes were exaggerated and ankle clonus was present on both sides. Ten days after admission the patient fell, and became completely paralyzed. The diagnosis rested between pachymeningitis, cervical hypertrophica, and syringomyelia. The disease did not progress very markedly, and the patient was sent home ten months after admission.

In July, 1894, he returned to the hospital. He was perfectly helpless. There was no paralysis of any cranial nerve. He had no control over the bladder and suffered from obstinate constipation. All reflexes were increased.

The condition (after careful exclusion of all other possible causes), was considered to be a tumor or a localized thickening compressing the cord from the fifth to the eighth cervical nerve roots.

On September 12, 1894, an operation was performed. On exposing the spinal canal it was found to be completely filled with a reddish-grey, smooth mass, composed of a greyish granular and gelatinous-looking substance, entirely outside the dura. It extended as far as the fourth cervical vertebra above, and to the first dorsal arch below, extending forward on each side among the nerve roots. The new growth was adherent to the inner surface of the posterior arches of the third and fourth cervical vertebrae. The membranes were adherent to each other and to the cord, over the extent of the tumor. The cord in this area was soft and flattened. The vertebrae were normal in all respects. The tumor lay outside the dura, loosely attached to it, soft and not laminated. Sections of the cord showed extensive destruction from pressure. Some white fibres, however, retained their myelin sheath, especially in the lateral columns. There was found ascending degeneration in the posterior columns above the tumor, and descending degen-

eration in the pyramidal tracts below it. About one-third of the fibres in these degenerated areas remained normal.

Microscopically, the tumor was seen to spring from the outer surface of the dura. It belonged to the class of endotheliomata.

The most important features in this case, as enumerated by the author, were :

1. The long duration, with sudden exacerbation of all the symptoms after a fall.

2. The close resemblance of the sensory disturbance over a certain area to that commonly met within, and regarded as typical of syringomyelia. This at the time caused some difficulty in diagnosis.

3. The remarkable absence of severe pain, and of root-pains, radiating from the affected part of the cord ; possibly accounted for by the soft nature and slow progress of the growth, producing only very gradual increase of pressure on the nerve roots. This may possibly be in the future an important diagnostic point in differentiating this variety of tumor from other growths in the spinal membranes.

4. The existence after such a considerable time of many apparently healthy fibres in the affected part of the cord, and in the degenerated tracts, presumably rendering possible a fair amount of recovery. The operation, however, did not remove the whole of the growth.

LOEWENKOPF.

Muscular Atrophy and Peripheral Nerve-changes Following Typhoid Fever.—Lloyd (University Medical Magazine, March, 1895) an interesting and rather anomalous case of nerve disease, following a prolonged and very severe attack of typhoid fever in a man of thirty years of age, who had always been feeble-minded, but had never shown any disturbance in his muscular system prior to his illness. The morbid nervous phenomena observed were :

1. The development of a spot of gangrene in the left foot behind the external malleolus, and a small ulcer on the right foot at the same place ; both were sluggish in character and refused to heal in four months despite careful dressing.

2. Severe pains in the legs, beginning in the sixth week of the disease.

3. Paralysis in both legs, which probably began about the same time.

4. Swelling of the right knee and œdema of the right leg (not phlebitic) ; the joint disease resembled a spinal arthropathy of mild type.

The muscular condition in the fourth month, when Dr. Lloyd took charge of the patient, was briefly the following :

The peroneal and sural muscles in both legs were markedly wasted, the wasting being worse on the left side. The quad-

riceps-extensor muscle was involved, very markedly so on the left side. The extension of the toes was not entirely paralyzed. The knee-jerk was almost abolished on the right; much diminished on the left. There was some wasting of the thenar and hypothenar of the hands. No fibrillation was observed. The most wasted muscles (peroneal and sural groups) did not respond to the electric currents at all; in the less wasted muscles partial D. R. seems to have been present. No disturbance of sensation was noted.

The author discusses the relation of his case to the ordinary cases of post-typhoidal multiple neuritis, to the "peroneal type" of progressive muscular atrophy of Tooth and Marie, and to the muscular atrophy observed by Ormerod after measles in three members of one family (Brain, Vol. VII). The author does not believe that a peripheral neuritis alone can be always held responsible for the conditions described. He considers it possible that the muscular tissue itself may be at fault in some of the cases, as it is known from the researches of Fenker and others, that the voluntary muscles undergo grave changes in typhoid fever. In his case, there was no hereditary neurotic element present, but a defective nervous system, as evinced by the imbecility present. STIEGLITZ.

Case of Acromegaly with Ocular Complications.—A. H. Bensar, F.R.O.S.I. (*British Medical Journal*, October 19th, 1895). The patient was a man, aged 38, who, after an injury to his leg nine years previous, began to grow lazy, sleepy and big. Sight had been affected for two or three years. He was a heavy smoker; had a central scotoma for colors and a bitemporal color defect; vision $\frac{6}{60}$ in each eye. After giving up smoking, and taking iodide of potassium, vision was again $\frac{6}{6}$; remained good for two years. Took to smoking again and in two months vision was reduced to $\frac{5}{60}$. At this time he presented the characteristic appearance of acromegaly and there was irregular hemianopsia. After the administration of thyroid extract, after seven weeks vision was again $\frac{6}{6}$. A.W.

"Beitrag zur Frage des rheum. infectioesen Ursprungs der Chorea."—Dr. med. Heinrich Meyer, (*Jahrbuch für Kinder heilkunde und Physische Erziehung* XI. Band Aug. 6th, 1895).

After a very careful and thorough consideration of the subject in hand, the author comes to the following conclusions:

1. True chorea minor occurring in children, is due in the majority of cases, to rheumatic infection.

He considers that other causes where they occur, play an unimportant part, at most, probably a predisposition to the development of the disease. In the majority of cases (80% according to the statistics of the author) where a careful history has

been taken, and the patient kept under observation for some time, the following facts were noticed :

(a.) That chorea occurred as an equivalent for a rheumatic attack, and often in the form of a relapse

(b.) In common with chorea, other rheumatic manifestations would show themselves—endocarditis, joint trouble and general gout.

(c.) That in patients who are predisposed to suffer from rheumatism, chorea may introduce the attacks.

(d.) During the season when rheumatism seems to be more or less epidemic, chorea occurs frequently.

(e.) That certain cases of chorea respond to anti-rheumatic treatment. In the minority of cases (20%) a previous history of rheumatism is wanting. And still there appears to be no absolute proof that rheumatism may not after all be the cause. In these cases the symptoms and the cause of the disease resemble the rheumatic cases.

2. In a careful bacteriological examination of a case which resulted fatally, Prof. Dr. Dublin found present the streptococcus pyogenes—staphylococcus pyogenes citreus. These same organisms has been found in the pathological productions in acute articular rheumatism, but for the present there is still doubt whether these organisms are the actual excitants of this disease or not. Nevertheless the bacteriological finding is an extremely interesting one.

A. WIENER.

Recurrent Oculo-Motor Palsy with a case.—S. E. De Schweinitz, M. D. (*Boston Medical and Surgical Journal*, vol. CXXXIII., No. 14).

Briefly recapitulated by the author, the points of this case are the following :—Right oculo-motor palsy at the age of one and one-half years ; recovery in six weeks ; frequent recurrence of the ocular palsy, associated with severe neuralgia and followed by complete recovery of the paralyzed muscles during the intervals, until the patient's fourth year, when the divergence remains, but the ptosis successively recurs and disappears as heretofore ; finally, permanent ptosis at the twenty-eighth year, after the most violent attack of pain of the whole series, and the present appearance of complete permanent right ocular-motor palsy. Other nerves are not involved in this case, for example, the abducent, facial, or tri-facial.

Treatment with mercury, iodides, strychnia was faithfully tried without avail. Electricity also proved to be of no use.

A. WIENER.

Book Reviews.

PHYSICAL AND NATURAL THERAPEUTICS. By Georges Hayem, M. D. Edited by Hobert Amory Hare, M. D., Philadelphia. Lea Brothers, 1895.

Dr. Hayem and his American colleague, Dr. Hare, have given us a work on the therapeutic uses of natural agencies of a much more extended sort than we have yet had in any single treatise. The authors discuss, in separate chapters, the usefulness of varying atmospheric pressures, whether produced by differences in natural elevation, or artificially by rarefaction or compression of air for inhalation; climate, a chapter which contains a very good and clear resumé of the advantages of the various resorts of America, with some direct practical suggestions by the American editor. Thermic agents are next considered, separate from hydrotherapeutic measures, which have a chapter to themselves (an improvement on the arrangement of the French edition), and a large section is devoted to the consideration of mineral waters, their indications and modes of application, with finally a very long chapter upon electricity and the instruments and methods used.

It is curious that in so inclusive a work upon natural means of treating disease, massage should have been entirely omitted, as it would seem to have a claim, if not to a detailed study, at least to a resumé of its methods and value.

The most valuable chapter in the book to the American practitioner is, to our mind, the brief one upon climate. The discussion as to what constitutes a desirable winter or summer station; what is to be looked for in the records of wind, temperature, rainfall, altitude, and so on, before we can decide as to what place we should send a given patient, are all given with conciseness, clearness and, so far as we have examined, with exactness.

An occasional mis-print is found, as is, perhaps, inevitable; for instance, on page 69 "Bloemfowlein" should probably be "Bloemfontein," the capital of the Orange Free State; on page 103 "Toplitz" should be more specific, as there are several places of the name, and on page 377 "atrophic" should be "trophic"; but these are very small blemishes upon a work which is, on the whole, remarkably correct, and we should be exceedingly grateful for the excellent index with which it is supplied. After several experiments we have failed in no instance to find what we searched for—a virtue which, we think, must be due to the good judgment and experience of the American editor. We quote one brief article as an example of how such a book should be indexed:

"Catarrh; cold, dry climates predispose to; Colorado contraindicated in catarrh of the stomach; Madeira for laryngeal; mountain climate in chronic pharyngeal; Pau for irritable cases; Riviera for chronic; sulphur waters for chronic respiratory."

While the chapter upon mineral waters is in many respects very good, it has seemed to us the least satisfactory. The attempt to include almost every possible mineral spring known to physicians of the world, results in a rather confusing excess of names. It cannot surely be that

all of the hundreds mentioned are valuable, and it would seem better to have omitted the minor and less important ones, and perhaps to have been a little more definite about the indications for use of the acknowledged important waters.

The book serves an excellent purpose, and cannot but promote a better knowledge of the best modern views as to the therapeutic influences of the natural means at our disposal.

MITCHELL.

"LA CONFUSION MENTALE PRIMITIVE, STUPIDITÉ DEMENCE AIGUE, STUPEUR." Von Ph. Chaslin. Asselin & Houzeau, Paris, 1895.

The classification of insanity, which has been so vexing a problem for many years, seems to be slowly settling itself by a process of evolution. When practical clinicians find that amongst the enormous number of names furnished by alienists for various clinical forms of mental diseases, some particular one actually serves a purpose, it is gradually adopted. In this way, we have seen the meagre list of insanities, such as used to be adopted by the old superintendents of American asylums, and which included only about five groups, gradually expanded until now, even the most unlearned recognize, at least eight or ten groups into which his cases are divided. One of the forms of insanity which has been most widely accepted as deserving a separate name and description, is that about which M. Chaslin has written, viz., "Primary Mental Confusion." The history of the use of this term, and of the gradual development of our conception of "confusional insanity," is given by the author in his first chapter, and it embraces about one-fourth of the book. The space is well employed, however, because it shows under what different names, and from what different points of view this type has been studied. The chapter shows also the exuberance of nosological delirium into which writers on insanity have fallen, since not less than thirty-two names, for what is pretty nearly the same thing, have been given, for what is now more or less generally spoken of as "mental confusion" or "confusional insanity." One feels that there must be something almost morbid in this frenzied word hunting, which overtakes writers on insanity. After Dr. Chaslin's historical survey, a chapter upon symptomatology and "Primary Idiopathic mental Confusion," as he calls it, is given, and this is followed by a description of the symptoms of various allied forms. These allied forms Chaslin describes under the head of sub-acute mental confusion, with delirium; the delirium of collapse, and of Weber and Krepelin, profound primary mental confusion, acute dementia, the light mental confusion or "stupidité" of Delasiauve, and finally, the typhoid or meningitic form. Besides the foregoing, which are all classed as idiopathic in character, Chaslin describes a confusional insanity which he regards as symptomatic. These symptomatic forms are due to various affections, such as are associated with typhoid fever, erysipelas and rheumatism, and he includes under it also the insanity of neuritis and alcoholism. Nearly all organic diseases of the brain, and even functional disorders, like epilepsy, Basedow's disease, are sometimes associated with the symptoms of mental confusion, so that the symptomatic confusional insanity may be regarded, from the author's standpoint, as the clinical name to be applied to nearly every febrile and toxic acute psychosis. After a discussion on the psychology of the disorder, which is not particularly fruitful, the states of secondary mental confusion are described. Under this head, he refers particularly to the confusional hallucinatory states that develop in the paranoiac. The author continues his systematic

description of the pathology, diagnosis, prognosis, and treatment of the disorder, but we have not space for a further analysis of the same. It is sufficient to say that the work is done with a great deal of care, and shows the signs of extensive research, which is very creditable to the French author. We notice that even the work of American writers has not been neglected. The impression which one gains from reading Chaslin's work, is that he has tried to make the term, "primary mental confusion," cover almost too large a range of topics, and that the ordinary student, at least, will feel that there are not many cases of insanity to which the term may not sometimes be applied. This, perhaps, is only the result of the author's attempt to be too careful in giving weight to every authority who has spoken on the subject in question. His final definition of "primary idiopathic mental confusion," is not so elastic in its form as one would imagine, and represents, we think, particularly well the conception of the disease as held by most alienists. The disease, he says, is characterized by somatic phenomena of denutrition and by mental phenomena. The essential elements of the mental phenomena (which are the direct results of the somatic state), consist in a form of weakness, an intellectual disassociation or mental confusion, which can be accompanied or not, by delirium, hallucinations, agitation, or, on the contrary, with motor inertia, and with or without marked variations in the emotional state.

DANA.

ANTISEPSIS AND ANTISEPTICS. By Charles Milton Buchanan, M. D., Professor of Chemistry, Toxicology and Metallurgy, National University, Washington, D. C. With an Introduction by Professor Augustus C. Bernays. The Terhune Co., Newark, N. J., 1895.

While this book purports to be, and is, to a certain extent, "a manual of antiseptics," it is rarely (fortunately), that the medical profession has a publication offered it, bearing more palpably the ear-marks of the "trade ad."

The author devotes considerable space and attention to the history of antiseptics, and follows this with an alphabetical list of the different antiseptics, and a short description of all but one preparation—a proprietary one—which he dilates on, even going so far as to give the name of the chemical company which makes it, although he takes good care *not* to give its exact formula.

The value and use of antiseptics is considered, special attention being paid to the author's favorite, and the book closes with one chapter on the essentials of antiseptics and asepsis, the author apparently rating the former far above the latter. The book is poorly printed, on cheap paper.

GAZZAM.

NERVOUS AND MENTAL DISEASES. By Landon Carter Gray, A.M., M.D. Second Edition, revised and enlarged, pp. 735, including Glossary and Index, 172 illustrations and 3 colored plates. Lea Brothers & Co., 1895.

The second edition of this popular work, shows that in the two years which have intervened since the first edition appeared, the author has

taken great pains to eliminate many of those defects which are almost invariably to be observed in new books. Several additional chapters have been added, and many of the original chapters have been so changed as to make them comparatively new. The illustrations, which were always a conspicuous feature of the volume, have been increased, and three new colored plates in the section on anatomy add greatly to the attractiveness and utility of the book.

There is little to be said in reference to the merit of the work, from the standpoint of the neurologist, in addition to the views expressed in our criticism of the first edition.

Exception may, perhaps, be taken to the author's opinion, that Hydrotherapy should mainly be valued for the cleanliness which follows its use. Most investigators are ready to admit that even the simplest forms of Hydrotherapy, of which anyone may avail themselves who can procure hot and cold water, can often be advantageously utilized to obtain sedative, tonic and stimulating effects. Many consider it, as a whole, of vastly more importance, in the general treatment of nervous affections, than electricity. It is certainly an agent of sufficient importance to deserve some recognition in a text-book.

It is somewhat disappointing to observe the retention of tabes among the diseases of the cord. The widespread implication of the nervous system generally in this affection, would seem to render Hirt's classification of tabes as a systemic disease much more acceptable. The pathological changes which take place in the nervous elements are well described, but the author is silent concerning the abnormalities in the vascular system which are certainly very important and which probably, in many instances at least, constitute the initial morbid process of the disease.

Generally speaking, the descriptions of the various diseases are accurate, and the symptoms and differential diagnosis are set before the student in such a way as to be readily comprehended. The author's long experience render his views on therapeutics of great value, and many important suggestions in reference to the management and treatment of the various nervous disorders can be gleaned from this volume.

It is unnecessary to say more. In our review of the first edition it was prophesied that the work would receive a warm welcome. It is a pleasure to admit that the prophecy has been verified.

G. M. H.

"AND THE CRY IS, STILL THEY COME!"

A sixty-four-paged monthly with the title of *American Medical Review* (Vol. I., No. 1), comes to us for review. It purports to be edited by Daniel Lewis, A. M., M. D., and published by the R. N. Plummer Co., of New York. This new claimant for medical notice is gotten up on the lines of the cheap lay monthlies which have appeared in such mushroom-like profusion in the past year or so, its price being ten cents a copy, or one dollar a year.

It has evidently already secured the approbation of the "trade," is well filled with "adds," and speaks in many ways as another aggressive foe to the Scientific Journal.

The reviews are numerous, but so many hint so strongly of trade machination that they cannot hope to receive the approval of the physician who desires to see an advance in journalism.

There are already too many medical journals, and therefore many of them are obliged to turn for aid to the advertiser, and accept his aid even though his views are not scientific or on professional lines.

In conclusion we may say that this new claimant to the professional

attention and support fills no untried niche; and, while it, doubtless, will attain a certain degree of success, it will find many strong competitors in this quasi-scientific field.

GAZZAM.

A NEW JOURNAL.

Pediatrics is the title of a new medical journal devoted to children's diseases. It is edited by Dr. Geo. A. Carpenter, of London, Eng., and owned by Dr. Dillon Brown, of this city. The editorial staff consists of—A. Jacobi, F. Forcheimer, H. R. Wharton, F. S. Eve, H. L. Taylor, F. R. Fisher, M. Manger, J. Boas, Dawson Williams, H. H. Rusby, E. H. Grandin, W. C. Glasgow, M. Hovell, J. N. Hyde, L. Phillips, M. Standish, W. A. Brailey, J. Collins and W. R. Gowers. The journal is to be published semi-monthly and illustrated. It cannot fail to meet with success, if the subsequent numbers prove as attractive as the first one.

FREEMAN.

Correspondence.

APROPOS OF CLAIRVOYANCE.

Mr. Editor:—My attention has been called to the letter of Dr. R. Osgood Mason in the November number of your Journal.

In my August letter, I asked, "Have we a school of psychologists who are not willing to receive facts?"

Dr. Mason says that there is such a school, and mentions the names of Professor Wundt and the late Dr. W. B. Carpenter as examples. As instances of the alleged facts which they do not receive he mentions clairvoyance.

Just here I pause to ask, What is clairvoyance? A clear, substantial definition of this term is needed for a profitable discussion of this subject.

The line of reasoning which characterizes Dr. Mason's letter, might lead one to suppose that he is ready to stand sponsor for all the vagaries of trance-mediumship; it is possible, however, that I have misunderstood him. His main contention seems to be that there is a higher or "subliminal" self, which sometimes (in states of clairvoyance) gives utterance to facts which were never parts of the acquired knowledge of the individual, having not been obtained in the ordinary way through the special senses.

If this be his contention, he may well quote in opposition the names of Carpenter, Wundt, and in fact, nearly the whole scientific world. The standpoint of these men is simply this (to quote from Huxley): "The more a statement of facts conflicts with previous experience, the more complete must be the evidence which is to justify us in believing it." Huxley illustrates this principle in this way, "If a man told me he saw a piebald horse in Piccadilly, I believe him without hesitation. The thing itself is likely enough, and there is no imaginable motive for his deceiving me. But if the same person tells me he observed a zebra there, I might hesitate a little about accepting his testimony, unless I were well satisfied, not only as to his previous acquaintance with zebras, but as to his powers and opportunities in the present case."¹

The same argument is applied to statements which might be adduced to prove the existence of a live centaur somewhere in Piccadilly.

This was precisely my attitude in my August letter, and Dr. Mason alludes to it in this manner: "Dr. Hurd himself, with all his interest in the subject, does not hesitate to say that he would require facts of an uncommonly well-attested kind, before he could believe in the possibility of visual perception gained where vision by the physical organ of sight is impossible." Dr. Mason continues: "Evidently he does not accept the alleged fact." I reply—not till it is proved to be a fact, and I demur to his statement, "that such facts are as well established as any other fact in nature."

Dr. Mason refers to the scepticism of Dr. Carpenter. I here quote from the latter apropos of some of the pretensions of clairvoyants: "In regard to the alleged powers which are said to be possessed by many somnambulists of reading with the eyes completely covered, or of discerning words enclosed in opaque boxes, or of giving an account of what is taking place at a distance, and coming under the general term

¹ Hume, page 132.

clairvoyance, the author need only here express his conviction that no case of this description has ever stood the test of searching investigation" (Prius. Human Physiology, last Am. Ed.).

Dr. Carpenter told me on the occasion of his last visit to America, that he was of the same opinion still, and that he had made not a few investigations into the phenomena of the automatic life, and believed that he might speak with some authority on these points.

I think that Dr. Carpenter's experience has been that of multitudes all over the world; it certainly has been that of the Seybert Commission, in whose findings I have a good deal of confidence.

Gentlemen, we want facts, but we do not want misinterpretations or misrepresentations. When we are referred to certain facts, we may well ask, "What facts? What are the facts?"

Expert testimony is what is wanted in these cases which transcend ordinary experience, and here a strong bias in favor of a supernatural interpretation disqualifies a witness. Much of the work of the English S. P. S. is invalidated by reason of this bias. The utter worthlessness of inexperienced testimony when it is a matter of testing the feats of mediums, (all mediums with whom I have had any acquaintance are frauds and humbugs) has been illustrated again and again.

If Drs. Richet, Paul Janet, Azam and others cited by Dr. Mason, are believers in clairvoyance, it is a different kind from that in which he seems to believe. Double personality is in its essence only the exaltation of certain regions of the cortex, the seat of faculties and groups of memories, while other regions are less active or wholly dormant. There is generally inhibition, partial or complete, of present sense impressions. The circulatory energies are exaggerated in certain centres at the expense of others whose activity may be suspended. To a certain extent, a man has a double personality every day of his life; there is a waking personality, and a personality of the dreaming state. There is also a personality manifested in states of delirium, different from the ordinary personality. Hysterical women sometimes manifest this *de doublement de la personnalité* in a peculiar and striking degree. Thus Dr. Azam's patient, who for a series of years, exhibited two personalities widely differing from each other, characterized by different sets of memories and different dispositions, passing from one to the other after a variable time. Ribot (*Maladies de la Personnalité*) gives numerous instances that are similar; so also does Janet in his *État Mental des Hystériques*, and in his *Automatisme psychologique*. Charles Richet, in a striking chapter on *L'Homme et l'Intelligence*, ventures an explanation which shows that he is no believer in a "subliminal consciousness." These men treat of clairvoyance simply as a vagary of the personality, not as Dr. Mason seems to regard it. Subliminal nonsense!

Dr. Mason's historical argument is worthless. It is admitted that early races were superstitious. We do not now believe in witches or in hobgoblins. Neither did the best men of antiquity:

"Somnia, terrores magicos, miracula, sagas, nocturnos lemures, Portentaque Thessala rides."²

The ancient Jews even believed in "divine" communications through dreams—who now fears or cares for dreams? It was held and thought, that the demons communicated with men through the feeble-minded, the hysterical, the epileptic. We have now a rational explanation of this belief; we do not accept the fact. I advise Dr. Mason to read carefully, Lucian's "Alexander, the False Prophet." I believe "the facts" are as Lucian states them—Alexander was the prince of ancient humbugs.

I repeat what I have said above, none of the eminent scientists to

² Horace Epist. Book II, ad Iulium Florum.

whom Dr. Mason alludes, believe in clairvoyance as a "supra-normal perceptive faculty," "an attribute of the subliminal self." To Dr. Mason's "subliminal consciousness" they would very likely say with Mr. Burchell in the Vicar of Wakefield: "Fudge!" No one has shown more clearly than Paul Janet how the phenomena of double consciousness coincide with the ordinary laws of mind.

The notion that you can get out of any man's brains (or out of the brains of a hysterical or neuropathic female) any item of knowledge that did not come in through the natural channels of sense, is wholly incredible and absurd, and I will believe it when it is demonstrated that there are centaurs in Piccadilly.

E. P. HURD, M.D.,
Newburyport, Mass.

Miscellany.

TO THE EDITOR OF THE JOURNAL OF NERVOUS AND MENTAL DISEASE.

Dear Sir :—By some strange mistake the book of Dr. John K. Mitchell received a wrong title in my review.

It should be, "Remote Consequences of Injuries of Nerves," instead of, "Injuries and Diseases of the Nerves."

Apologizing for my error, I beg you to kindly give due notice of its correction in your journal.

Sincerely yours,

B. ONUF.

SIX HUNDRED (\$600) DOLLARS IN PRIZES.

The special attention of our readers is called to the advertisement of the Palisade Manufacturing Co. with the above title on page II. of cover of this issue.

The prize contest which this well known firm announces, will no doubt attract a great deal of attention, and result in the submission of many articles of merit on "The Clinical Value of Antiseptics, both Internal and External." The prizes are extremely liberal, and the well known professional and literary eminence of Dr. Frank P. Foster, the talented editor of the *New York Medical Journal*, who has kindly consented to act as judge, is a sufficient guarantee of the impartiality to be observed in the awarding of the prizes.

We are assured that there is absolutely "no string" attached to the provisions of this contest, and any physician in good standing in the community is invited to compete on equal terms with every other competitor.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

ON THE COURSE AND DESTINATION OF
GOWERS' TRACT.¹

BY HUGH T. PATRICK, M.D.,²

Professor of Neurology in the Chicago Polyclinic; Instructor in Clinical Neurology
Northwestern University Medical School; Consulting Neurologist to
the Illinois Eastern Hospital for the Insane.

THE literature on the anatomy of Gowers' tract is not very extensive, and a large proportion of it being principally of historical interest will not be here considered.

Gowers first described his antero lateral tract in an address delivered in October, 1879, to the Medical Association of Wolverhampton,³ and later in his diagnosis of the diseases of the spinal cord, 1880, p. 13 (v. also his Diseases of the Nervous System, 1892, Vol. I., p. 183).

Up to this time it had been confused in the cord with the direct cerebellar tract, but two distinct bundles, presumably of this latter tract, had been recognized in the medulla for some time by Meynert,⁴ Flechsig,⁵ and

¹ The first part of the work upon which this paper is based was done in the pathological laboratory of University College, London, for the privileges of which I am indebted to Mr. Victor Horsley. The material was kindly furnished me by Professor Robert Boyce who had operated upon the animals for other purposes. To these gentlemen I wish to express my sincere thanks for these, as for many other courtesies. The work was finished in the pathological laboratory of the Chicago Polyclinic.

² Presented to the American Neurological Association, May, 1895.

³ *Medical Times and Gazette*, Nov. and Dec., 1879.

⁴ *Arch. f. Psych. u. Nerv.*, IV., 1873.

⁵ *Leitungsab. im Geh. u. Rück.*, 1876, p. 326.

others, a dorsal bundle which passed backward along the periphery to occupy the corpus restiforme, and a smaller ventral bundle which occupied a position between the olivary body and the ascending root of the fifth nerve. The former was known to pass into the middle lobe of the cerebellum, but the termination of the latter was not definitely settled. Gowers did not consider the fibres of the antero-lateral tract to have any relation to this ventral bundle, a possible connection evidently never having occurred to him as he traced his tract only to the upper part of the cervical enlargement, and did not even formulate a supposition as to its further course. This connection was discovered at about the same time by Bechterew⁶ and Leowenthal.⁷ The latter considered it to be a part of the direct cerebellar tract, but the former described it as a distinct system on developmental grounds, the fibres receiving the medullary sheath at a different period from the other parts of the lateral column. He followed it, however, only to the lateral nucleus of the medulla and inferred that it terminated here. V. Monakow by means of Gudden's method had previously traced it somewhat higher, to the exit of the trigeminus, and thought it probably passed into the lateral fillet. Flechsig, indeed, although not tracing it so high, had expressed the same opinion. Many recent writers⁸ still consider this tract as terminating in the pons. The findings of Loewenthal must receive more special mention as he followed these fibres far above all previous observers and traced out a course sufficiently long and tortuous to have attracted more attention. He deserves the more credit for his work in that he had not the advantage of the more recent technique (Marchi's method), but used a carmine stain. His investigations were made on two dogs, the spinal cords of which had been divided by Schiff, the one between the second and third cervical segments, the other between the fifth and sixth cervical. The accuracy of his deductions might be said to have been vitiated by the fact that the dog which furnished all the sections from the higher levels had undergone, in addition to his spinal section, an operation on the cerebral hemisphere

⁶ *Neurol. Centralb.*, 1885, pp. 155 and 341.

⁷ *Rev. Med. de la Suisse Romande*, 1885, pp. 382 and 511. (There is a very fair abstract of this paper by v. Monakow in *Neurolog. Centralb.*, 1886, p. 56).

⁸ Bechterew, Van Gehuchten, Obersteiner, Edinger, Von Lenhossek.

opposite to the side of the cord lesion. Loewenthal found that at the level of the striæ medullares the direct cerebellar tract had divided into two distinct bundles, the one occupying the corpus restiforme dorsal to the ascending root of the fifth nerve, the other ventral to the same, there being no degenerated fibres between them. Just distal to the exit of the fifth and where the corpus restiforme with the dorsal bundle had passed into the cerebellum, another degenerated bundle made its appearance medial, and dorsal to the brachium conjunctivum,⁹ while the ventral bundle was still to be found in its former place at the periphery, opposite the upper olive.

This new bundle, furthermore, lay lateral and a trifle dorsal to the fourth ventricle and vermis anterior (superior), and between fibres that were dorsal to the brachium conjunctivum and passed ventrally and laterally around and into it. The fibres of the bundle were cut partly transversely and partly obliquely. At the level of the exit of the fifth nerve the ventral bundle, owing to an increase of transverse pontine fibres, lay deeper from the lateral surface and had also moved somewhat dorsally. The brachium conjunctivum occupied the upper part of the isthmus, that is, the region of the isthmus situated above its lateral groove and the new dorsal bundle lay exactly dorsal to it. From here proximally the ventral bundle moves more laterally and dorsally just median to the most internal fibres of the middle cerebellar peduncle, traverses the most lateral part of the tegmentum and came to the surface at the lateral groove of the isthmus, being no more covered by the pontine fibres. These fibres were contiguous to the fillet, but never entered it. Loewenthal then infers that this bundle passes to the cerebellum, but could not demonstrate it.

From this time until the appearance of Mott's paper¹⁰ the investigations of this subject may be largely neglected as no distinct addition was made to our knowledge and the conclusions of Loewenthal remained unconfirmed except by Auerbach. (*Anat. Anzeiger*, 1890, and Virchow's *Archiv*, Bd. 121, 1890, p. 199).

He not only confirms in the main the findings of Loewenthal, but follows the ventral bundle to the

⁹ In this paper the term "brachium conjunctivum" will be applied to the bundle of fibres joining the cerebellum to the corpora quadrigemina (Bindern), while the ridge of tissue as a whole, the *processus e cerebello ad testis*, will be called the "peduncle" or "crus."

¹⁰ *Brain*, 1892, p. 215.

immediate neighborhood of the roof nucleus of Stilling of the opposite side, a few fibres going to the nucleus of the same side. The dorsal bundle, he concludes, ends in the dorsal part of the superior vermis, principally of the same side, and but few parts of the middle lobe are supplied by fibres from both bundles. He does not agree with Loewenthal that both belong to the direct cerebellar tract, but believes them to be two separate systems differing in origin, course and distribution.

Motts's experiments were made on two monkeys, in the first of which he made a section of the antero-lateral tract of either side in the mid-dorsal region and in the other a section of the same tract on the right side at the third cervical segment. Marchi's stain was used. He also had at his disposal the preparations made by Schäfer from two monkeys in which he had performed hemi-sections of the cord in the dorsal region. The cuts in Quain's Anatomy (Vol. III, p. 33) which illustrate the course of the antero-lateral tract were made from these preparations. They were also stained according to Marchi and are said by Mott to agree with his own. He describes the usual division into two bundles and notes that in the pons not only do the degenerated fibres of the ventral bundle form islets between the arciform fibres but that median to the compact area are some scattered fibres, and these he believes to be the same which he finds as high up as the anterior corpora quadrigemina, lying near to and external to the fillet. This will be referred to again. "At the level of the origin of the fifth nerve the fibres (*i. e.* of ventral bundle) become oblique and form a loop over this nerve; and posteriorly where the isthmus of white substance connects the superior cerebellar peduncle with the cerebellum, degenerated fibres can be seen entering the anterior portion of the superior vermis (the roof nucleus of Stilling)." "Still higher, just behind the posterior corpora quadrigemina, a tract of degenerated fibres is seen covering the superior peduncle of the cerebellum and continuous with the valve of Vieussens, into which some few degenerated fibres run." "The dorsal cerebellar fibres could be traced from the restiform body into the dorsal portion of the superior vermis, whilst the ventral portion was found as described by Loewenthal and Auerbach to take a much more circuitous course. In the pons they leave their ventral situation forming a loop over the fifth nerve, they are then directed obliquely

upwards and backwards on to the surface of the superior peduncle, forming a layer of fibres continuous with the valve of Vieussens and separated from the peduncle by a thin layer of gray matter, they then run downwards on the superior surface of the peduncle as far as its junction with the cerebellum at the isthmus, where these degenerated fibres can be seen streaming inwards to the superior vermis." He does not give the relations of the direct cerebellar to Gowers' tract.

Tooth (*Brain*, 1892, p. 397.) made "a small dorso-ventral incision in the lateral region on the right side" between the first cervical root and lowest portion of the medulla of a monkey, killed the animal after thirty-four days and stained by the Weigert-Pal method. He traced the ventral bundle as high as the superior cerebellar crus but not into the cerebellum.

The material for my own investigations was supplied by three cats. In the first a hemi-section of the cord was made in the upper dorsal region, in the others a complete section a little lower down. The animals were kept alive a number of weeks,¹¹ killed with chloroform, the brain and cord carefully removed, hardened in Müller's fluid, stained according to Marchi and cut in series.

As the Marchi method is beyond all doubt the method *par excellence* for studying secondary degeneration, a word as to the technique may be allowed. The tissue is first placed in Müller's fluid or bichromate solution but the hardening process need not be completed (as for Weigert), ten days to two weeks sufficing, if the pieces are not too large; the parts may, however, remain in this fluid for a long time without detriment. The staining is done in the piece before the sections are cut, but the pieces must be thin, not to exceed two or at most three millimetres, and they remain in the stain ten days to two weeks. The solution consists of two parts of Müller's fluid or three per cent. solution of potassium bichromate and one part of a one per cent. solution of osmic acid.

Dehydration, embedding in celoidin, cutting, not too thick, clearing in carbolic xylol and mounting in Canada balsam, complete the process. Degenerated fibres stain a dense, opaque black and are easily distinguished from the pale brown or yellowish brown of the remainder of the section. But the tissue must not remain too long in

¹¹ I have unfortunately mislaid the notes giving the exact time.

this osmic acid solution as normal fibres are then stained black and the degeneration is not so easily differentiated. This also renders the material very brittle and difficult to cut. Indeed this is apt to be the case in any event, and when possible the sections should be cut under alcohol. Scattered through the sections and particularly in the nerve trunks and where there has been post-mortem injury are black spots which may be mistaken for degenerated fibres. Ordinarily they are not so large nor so opaque as the latter and may be excluded with reasonable certainty, but they are at times very perplexing unless the fibres are cut lengthwise. A complete series is impossible with this method, if the pieces are large in diameter (as the pons with the cerebellum), because, as they are cut quite thin, they warp more or less in the fluid, and some part is always lost between the series of succeeding pieces. It is necessary to allow the celloidin plenty of time to permeate—two to three weeks—as the osmic acid makes the tissue very hard and impermeable. But the most important limitation of the method lies in the fact that the degenerative process must have passed ten days but not exceeded three months in duration.—about six weeks being the most favorable period. This greatly restricts its use in the examination of the pathological material from clinical cases, but it is to be hoped that in suitable cases the method will find a wider adoption.

I shall not consider the origin of the antero-lateral tract, nor the question as to whether fibres pass to it from the same or opposite side, and if the latter, whether they pass by way of the anterior or posterior commissure. Neither shall I discuss the physiology of the tract, but I may remark that although this is as yet undetermined, the opinion expressed by Gowers and Bechterew that it conveys painful expressions is entirely without foundation in evidence, and almost certainly wrong.

The position of this tract in the cord is so well known as to need no lengthy description. It lies along the periphery immediately in front of the direct cerebellar tract from which, its fibres being of the same large calibre, it is not to be distinguished in appearance, and extends as a narrow seam forward almost, or quite to the most lateral of the anterior nerve-roots, not to the anterior pyramidal tracts as first described by Gowers. At its posterior or dorsal end, in front of the direct cerebellar tract, it sends a small projection medianwards which

gives a transverse section of the entire tract somewhat the shape of a comma, head dorsally, tail ventrally. At the lowest part of the medulla oblongata, before the central canal has opened into the fourth ventricle (Fig. 1.) the direct cerebellar and anterior-lateral tracts (herein-after designed by d. c. and G. respectively) occupy approximately the same positions as in the cord, except that as the posterior horn (substantia gelatinosa Rolando) has been pushed laterally and forward by the nuclei of the columns of Goll and Burdach, it in turn has pushed the d. c. in the same direction, the latter lying almost exactly in the middle of the lateral periphery, largely condensed into a round head with a more slender cauda extending ventrally. This latter blends with G. which also extends nearer to the anterior median fissure than before but has almost lost its comma-like median projection. At a slightly higher level (Figs. 2 and 3) the substantia gelatinosa Rolando has receded somewhat from the periphery to allow room for the ascending root of the fifth nerve, and at this point the compact part of d. c. suddenly breaks and the fibres pass rapidly in a dorsal direction along the periphery towards the future corpus restiforme. This gives it again a comma-like shape but with the tail in the opposite direction. At the same time, while retaining its relative position, G. becomes more scattered. As we reach higher levels the fibres of the d. c. continue to pass dorsally until not only has the head of the comma ventral to the substantia gelatinosa Rolando disappeared, but there is almost a complete hiatus between this (d. c.) and the ventral bundle, G. (Figs. 4 and 5.)¹²

Indeed the d. c. now again forms a comma, the head being in the restiform body and the tail extending ventrally along the periphery external to the ascending root of the fifth. (Figs. 5 and 6.)



FIG. 1.



FIG. 2.

¹²At one place lower down (level of first hypoglossus fibres), d. c. and G., are quite separated by the lower lateral nucleus, but as soon as this



FIG. 3.



FIG. 4.

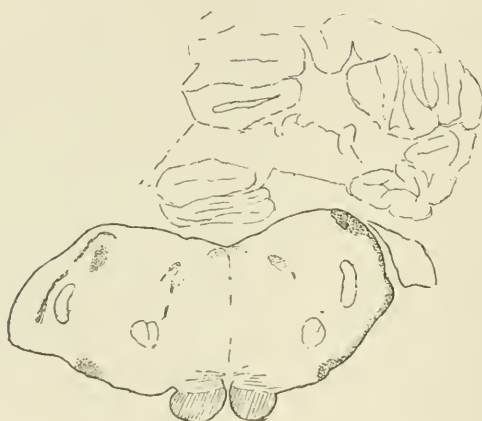


FIG. 5.

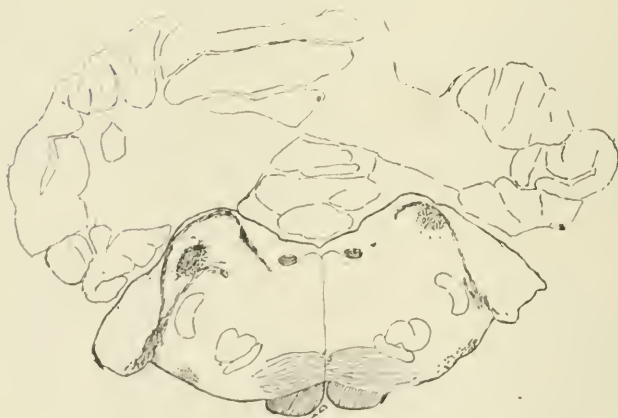


FIG. 6.

disappears they show a tendency, for a short extent, to blend again but never make a distinct union.

At the exit of the glosso-pharyngeal, the corpus restiforme is well formed and includes nearly all of d. c., but a few straggling fibres may still be seen in the very narrow band of tissue between the ascending root of the fifth and the periphery, connecting d. c. with G. which now forms a compact bundle on the periphery, lateral to the upper lateral nucleus and well removed from the trigeminal root. A little higher, (Fig. 6) as the fourth ventricle widens out d. c. takes up a position rather more lateral than before and is less compact. G. is also more scattered, being cut up into disseminated groups by the arcuate fibres and spreading out dorsally toward the ascending fifth as well as medially. This is the level at which Mott distinguished the more median of the scattered fibres as a separate group which he finds later in the anterior corpora quadrigemina, without showing how they got there. At the levels represented by (Figs. 6 and 7) the dorsal part of the lateral auditory root circles about the restiform body making it and consequently d. c. more compact. A trifle higher, also to be seen in Figs. 6 and 7, d. c. and G. are completely and distinctly separated by fibres which come to make up the auditory nerve and soon the emerging root of this nerve with various fibers and nuclei sweep away all trace of scattered degenerated fibres between the two. At the same time G. shows a tendency to become more compact and to move rather more dorsally although the direction of its fibres cannot be seen to change; they are cut squarely transversely. By the time we reach the beginning of the origin of the seventh nerve, Figs. 7 and 8, (root-fibres of the sixth can also be seen) it (G.) has moved still more dorsally and forms a compact bundle on the periphery immediately ventral to this nerve-root. This position it holds until after the exit of the fifth. At about this level or a trifle below we see the first of degenerated fibres in the ventral part of the superior vermis. The inferior worm does not extend so far forward (upward) as this. These fibres are first seen wholly within the vermis, along the dorsal part of the lingula, and apparently start from the line of union of this with the superior cerebellar peduncle, dorsal to the point where the roof of the ventricle, the velum medullaris anterior, joins the side. A little higher they are seen to start from the crus side of this line of union and with them we meet with the first of the fibres of the brachium conjunctivum which pass to

the middle cerebellar lobe,—supposing these fibres to come from above (corpora quadrigemina), down to the cerebellum. Most of them go to the middle lobe dorsal to the degenerated group, but a few are seen ventral to it. At a slightly higher level, Fig. 9, the fibres of the brachium are seen to pass in two directions, median-wards into the middle lobe and in a curve dorsally and laterally into the hemisphere over d. c. which is still a



FIG. 7.

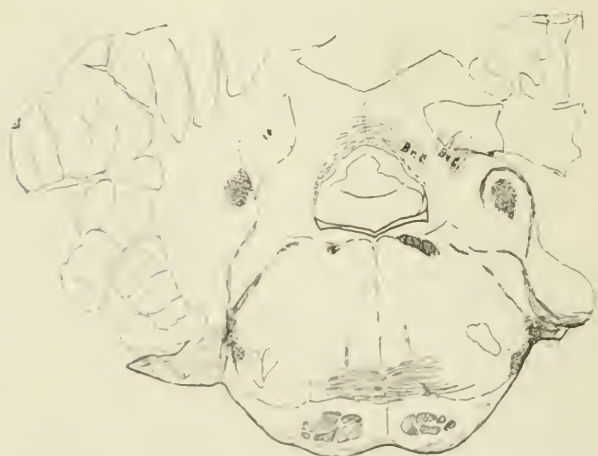


FIG. 8.

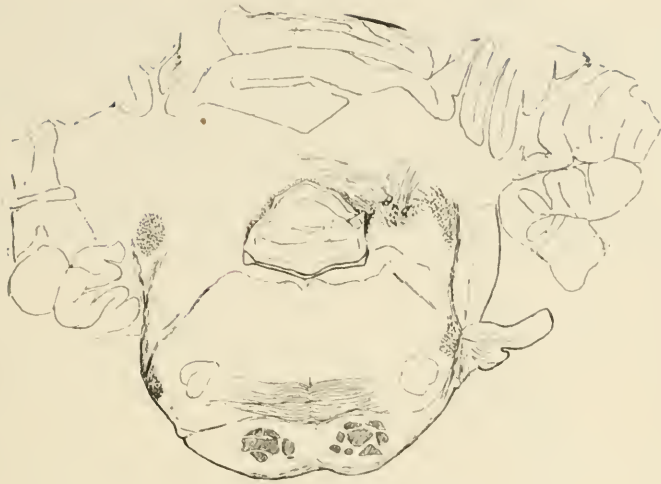


FIG. 9.

rather compact, bundle but has moved dorsally considerably beyond the level of the floor of the fourth ventricle. At this level can be distinctly seen fibres of the middle cerebellar peduncle, passing lateral to d. c. to reach the dorsal part of the middle lobe, although, more ventrally, the transverse fibres of the pons cannot be seen to have reached the cerebellum. That is, some of these fibres having reached the cerebellum curve in a caudal direction. As we shall see, this is characteristic of fibres coming to the cerebellum from below. Here the group of degenerated fibres lateral to the vermis has augmented considerably, and forms a triangular area, apex ventral, base dorsal. At Figs. 8 and 9, exit of the fifth, G. begins to straggle dorsally but cannot yet pass the descending root of the fifth which lies on a slightly higher level than the main trunk, d. c. is still rather compact but lies further dorsally and laterally and ventral to a large nucleus (corp. dentat.?). The group of degenerated fibres lateral to and passing into the worm is still larger. The sections represented by Figs. 9, 10 and 11 are most interesting as they are cut (accidentally) obliquely, one lateral half being on a higher level than the other. On the lower side fibres of the brachium are seen as two broad tracts passing, the one to the vermis, the other to the cerebellar hemisphere. On this side d. c. is still an unbroken group of fibres lying lateral to those of the

brachium which go to the hemisphere. But on this side many degenerated fibres are seen streaming into the middle lobe. It will be seen at once from the other (higher) side that these fibres come from the d.c., having curved around those of the brachium, their course being first proximal and dorsal, then median and then in a more or less retrograde direction caudal-wards. In the meantime the triangular group of degenerated fibres in the crus lateral to the lingula has been growing; particularly the more dorsal fibres, those across the base of the triangle, have been getting longer and are cut almost longitudinally as they pass into the ventral part of the worm. With them, as well as dorsal and ventral to them, pass fibres of the brachium conjunctivum. The vermis is filled with degenerated fibres and the d. c. bundle has broken and is seen to spread out dorsally and towards the middle line, the picture being suggestive of the stream from a sprinkling pot, but there is a clear space between these two areas of degeneration made up mostly of peduncular fibres, which shows how d.c. fibres make a curve or loop around those of the brachium. We have already seen that some of the fibres of the middle cerebellar peduncle make a similar proximo-distal loop, and we shall see that G. makes a like curve. It might be inferred from this section, but can be seen better a little higher, Fig. 11, that a good part of the fibres of the degenerated area at the crus-lingula-junction, comes from d.c. as it spreads out, and goes distinctly to the ventral part of the vermis. Owing to the before-mentioned curve made by d. c. it is impossible to say exactly what proportion of this triangular bunch (which we might call G") is derived from it. The side of the sections (Figs. 11, 12 and 13) showing this falls just distal to the point where the superior crus joins the cerebellum (proximal to the place where fibres of the brachium pass to vermis and hemisphere); that is, immediately below the isthmus, and even when the separation of the crus from the cerebellum is complete these fibres of d. c. are still quite numerous, showing that some fibres of this tract ascend as far proximally as the isthmus before turning back distally into the cerebellum. They at the same time curve over the brachium conjunctivum, forming indeed a triple knee, or curve in three planes, one proximo-distal, one latero-median and one ventro-dorsal, quite analogous to, but less pronounced than that of the root-fibres of the facial nerve

and almost identical with that of Gowers' tract, as we shall immediately see.

Numerous other fibres of d. c. go to the dorsal part of the worm, principally of the same side, partly to the opposite. Those distributed to the ventral part pass largely to the opposite side.

As remarked, the proportion of the degenerated area alluded to as "G," derived from d. c., can not be determined and the question arises whether all its fibres do not come from this tract. To answer this we must return



FIG. 10.



FIG. 11.

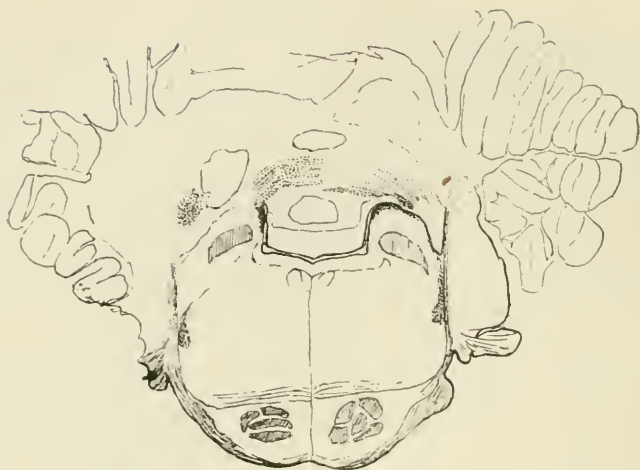


FIG. 12.



FIG. 13.

to G. Immediately the root of the fifth has made its exit (Figs. 11, 12, 13, 14¹³), this bundle starts to move dorsally, assuming a comma-like or triangular shape with the base ventral, the apex directed dorsally. As it moves dorsally just within the transverse pontine fibres (middle cerebellar peduncle), the apex or tail of the comma becomes more elongated until it nearly reaches

¹³ Figures 14 to 20 are reversed so that the right side corresponds to the left in the other figures.

the most ventral part of d. c., which is here fan-shaped—apex ventral—showing that the two tracts are very closely associated in this part of their course. This may account for the fact that Sherrington, quoted by Auerbach, traced G. into the restiform body. G. proceeds more and more dorsally as the remains of d. c. also recede dorsally and toward the middle line, until at the isthmus (Figs. 12, 13, 14, 15, 16, 17, 18), it lies along the periphery of the crus, the broadest part of the ventral extremity of the same, the tail reaching almost or quite to the apex. Covering this apex, or a little to the lateral side is a bunch of degenerated fibres which becomes rather more lateral and ventral in position as G. becomes rather more dorsal and median, until the isthmus of degenerated fibres connecting the two groups is about as wide as they, and we have a well-marked band of degenerated fibres cut almost longitudinally lying along the dorso-lateral periphery of the superior cerebellar peduncle (Figs. 17, 18, 19, 20). In other words, G. has been seen to pass from its position ventral to the ascending root of the fifth nerve, dorsally and proximally, until it forms a group as just described. As seen by the sketches 20, 21, 22, this group rapidly disappears as we ascend, remaining in the same position and the fibres being always cut longitudinally or quite obliquely, except at the ends of the group, so that some distance



FIG. 14.



FIG. 15.

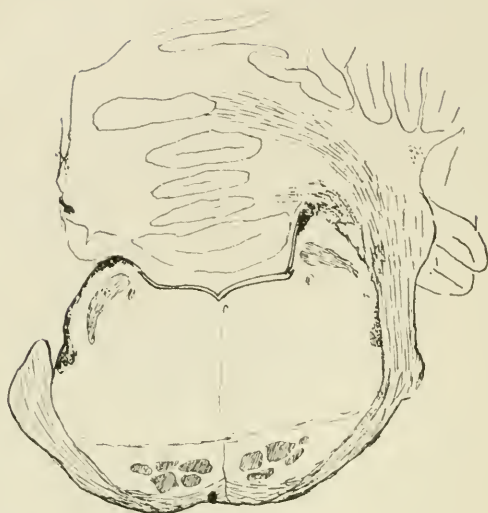


FIG. 16.

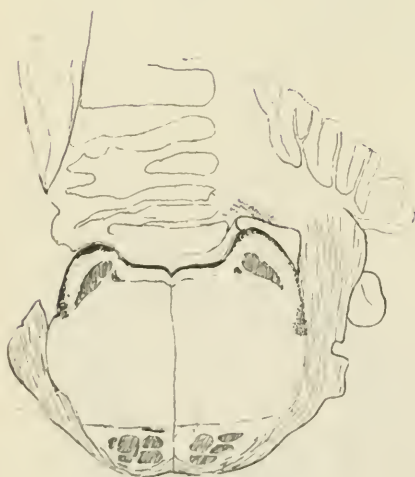


FIG. 17.

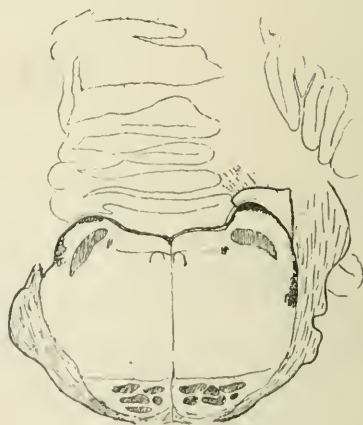


FIG. 18.

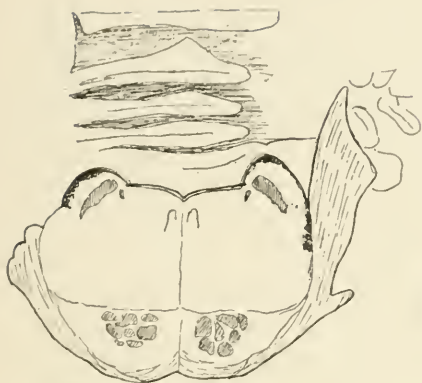


FIG. 19.



FIG. 20.

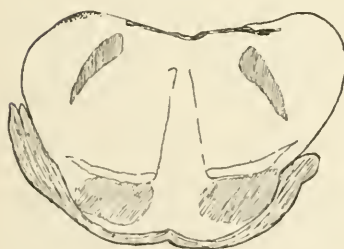


FIG. 21.

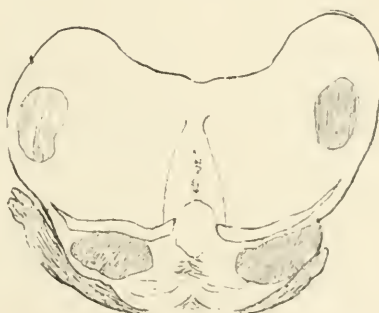


FIG. 22.

below the posterior corpora quadrigemina and before the fourth ventricle terminates in the aqueduct of Sylvius, no sign of it remains. I find no trace of the degeneration in the anterior corpus quadrigeminum described by Mott. It was probably an artifact; certainly had no connection with Gowers' tract. If from this level we again study the sections in a descending series, this cap on the crus is observed to move first medianwards until it lies exactly on the apex. In this position it is separated from the brachium by a layer of normal fibres, intermixed with more or less gray matter (more above, less below), which course around the brachium parallel to the surface of the crus. On the median side of the brachium they turn in a cephalo caudal direction (are cut transversely), and look as if they might come from a location median to d. c., or constitute a continuation of transverse pontine fibres; or possibly they belong

to the direct sensory cerebellar tract described by Edinger, although they are not exactly in the location described by this author. Lower, the *degenerated* area is found on the medio-dorsal periphery of the crus, and here it assumes the triangular shape, base dorsal, apex ventral, observed from this downwards almost to its disappearance. Slightly lower, as before mentioned, we can easily trace the connection of the most dorsal fibres, those of the base of the triangle, with d. c. (Figs. 21, 20, 19, 18, 17, 16), but with the more ventral ones no such union can be found, neither above nor below, and we are forced to conclude that they are a continuation of the fibres which capped the peduncle. That is, we have traced G. to a termination in the ventral and more distal part of the vermis superioris cerebelli, at least distal to the distribution of d. c.

The course of these fibres has been considered as very remarkable by Loewenthal and Moti, but I cannot look upon it as such,—at least in comparison with other tracts of the nervous system, notably parts of the lemniscus, the root of the seventh nerve and some of the root fibres of the auditory. It is described by the two authors just mentioned as looping back over the root of the trigeminus, but as a matter of fact it passes from this point still further proximally and turns back only when it has reached the isthmus, and this loop, as we have seen, does not much exceed in extent that made by d. c., and this exceeds only slightly that made by fibres of the middle cerebellar peduncle. The fibres in the crus between G. and the brachium conjunctivum were also seen to make a similar loop. The most obvious explanation of these facts would be that the distribution of the fibres in question has been carried backward by the development caudally of the cerebellum. Bechterew has shown that in some animals at birth the only fibres of the cerebellum clothed with a medullary sheath are the direct cerebellar tract, and a system which he derives from the superior olive. This in all probability accounts for the curve of d. c. exceeding that of the middle peduncular fibres. It would seem to be definitely determined, although detailed evidence on this point is difficult to find, that Gowers' tract develops at an earlier period of foetal life than the direct cerebellar tract.¹⁴

This, then, would account for its making a rather

¹⁴ Obersteiner: *Nervöse Centralorgane*, p. 250. Gowers: *Diseases of the Nervous System*, Vol. I., p. 170.

more pronounced cephalo-caudal loop than the latter. That is, having entered the cerebellum at an early period it would already have been carried backward somewhat, before the entrance of d. c. into this part of the brain.

That the ventral bundle (G.) in the medulla is the continuation of Gowers' tract in the cord would seem sufficiently plain from a study of my sections, but more conclusive evidence is not wanting. Herzen and Loewenthal¹⁵ made a section of the posterior half of the right side of the cord just below the medulla oblongata, leaving Gowers' tract uninjured, and the ventral bundle in the medulla was found normal, the dorsal bundle degenerated. The experiments of Mott were the converse. He cut the antero-lateral tract alone and found the ventral bundle in the medulla degenerated and the direct cerebellar tract (dorsal bundle) intact. Other experimenters have had similar results.

Whether the course of Gowers' tract in man corresponds to the foregoing results is yet to be demonstrated, but the similarity of the findings of Loewenthal in dogs, Schäfer, Mott and Tooth in monkeys, and of Auerbach and myself in cats, as well as the striking analogy of the anatomy of the tract in the cord and medulla would seem to indicate that it must be very nearly the same. In the new-born human subject the tract can be easily followed high up in the medulla, but at about the level of the origin of the auditory nerve so many other fibres invade this region that those of Gowers' tract are lost in the confusion. See N. B. 1, N. B. 2, N. B. 3, which are accurate sketches from sections in my collection. Unfortunately the investigations of pathological material in man have been in advanced cases, and by means of a carmine or



FIG. NB 1.

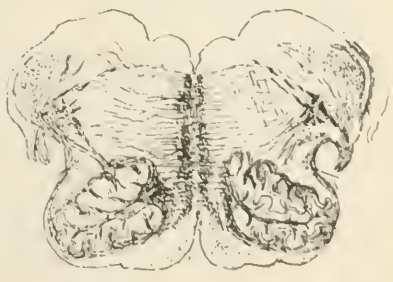


FIG. NB 2.

¹⁵ *Archives de Physiologie*, 1886, T. VII., p. 260.



FIG. NB 3.

Weigert stain and prior to my own examination of a case of total transverse lesion of the cord (at upper dorsal and lower cervical regions) the degeneration had never been followed (in man) above the lateral nucleus of the medulla,—by Gowers, as stated, only to the cervical enlargement. My better success was



FIG. X.

doubtless due, as stated at the time,¹⁶ to an exceptional result of the Weigert stain, for the period of degeneration (three and a half months) was such that a number of the degenerated fibres stained a uniform opaque black resembling greatly the effect of the Marchi method. See fig. X. which is taken from d.c. in lower medulla. (Weigert Pal stain). By this means I was enabled to trace Gowers' tract above the origin of the fifth nerve, possibly as high as the superior cerebellar peduncle but owing to imperfections in the material and to the fact that only a small minority of the affected fibres stained as stated, the character of the findings at the higher levels was somewhat uncertain. As far as traced with certainty the position of the tract corresponded exactly to that in the lower animals, except that the enormous middle peduncle of the cerebellum in man places it much further from the lateral and ventral surfaces in the pons. (Figs. I, II, III, IV, V.) taken from the case of crush of the cord alluded to, indicate the course of the tract.

Whether the antero-lateral tract constitutes a distinct system as Gowers, Bechterew and Auerbach contend or is to be considered as simply a ventral division of the direct cerebellar tract, I think must be left to physiological and pathological research; anatomy cannot decide it. Although they develop at slightly different periods, probably have not an identical origin, and run separate courses, they are similar in many respects. Their origin

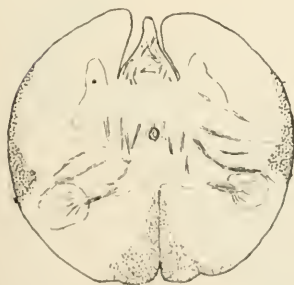


FIG. I.



FIG. II.

¹⁶ Ueber aufsteigende Degeneration nach totaler Quetschung des Rückenmarkes. Arch. für Psych. u. Nerv. Bd. XXV. Heft 3.

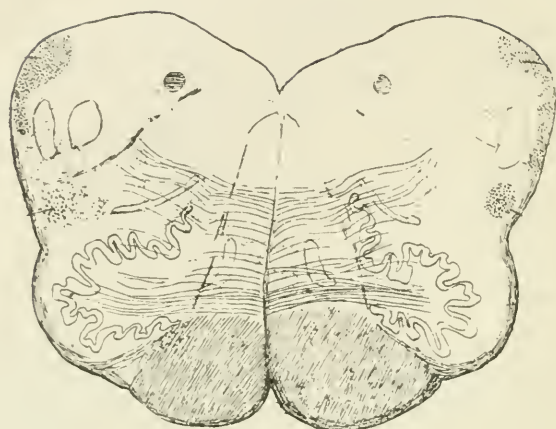


FIG. III.

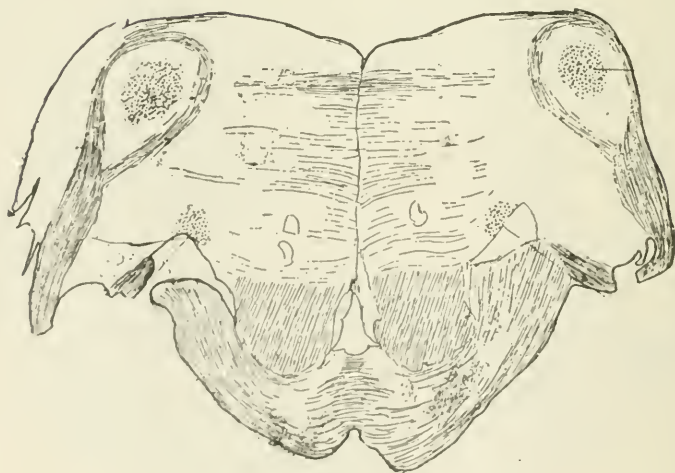


FIG. IV.

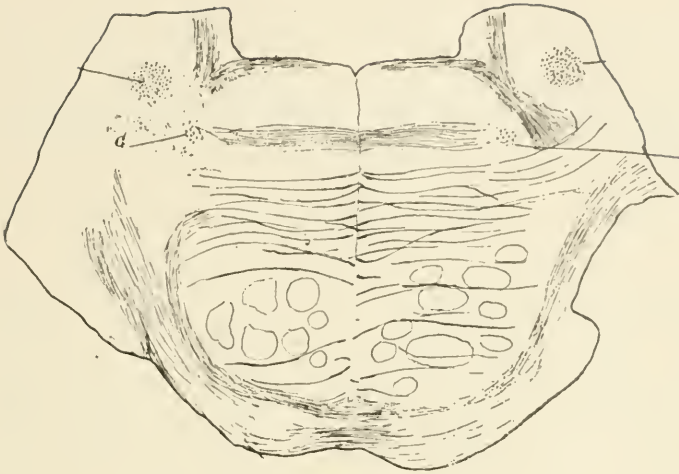


FIG. V.

is probably similar (posterior roots, through cells of posterior horns) their fibres are of the same calibre, and though separated from the medulla upward, they run side by side, even in the curved course to the cerebellum, and they blend in their distribution, as my sections plainly show, contrary to the dictum of Auerbach and Mott.

VENETIAN BUILDING.

NOTE ON A CASE OF CHRONIC PROGRESSIVE CHOREA.¹

By J. C. WILSON, M.D.,

Attending Physician to the German Hospital, Philadelphia, etc., etc.

IN Osler's monograph on chorea and choreiform affections, 1894, in the article on Huntington's chorea, some account of the Neiter family is given. So far as was known to the author, only four members of the family had at that time been affected, namely, the mother and three children. One of the sons, Peter, then aged fifty-nine, was at one time a patient in the Johns Hopkins Hospital. This case has been fully reported.²

In regard to another son, Nicholas, Osler's article contains the following note: "Nicholas Neiter, aged about forty, blacksmith, living at Edgewood, Hartford County, Md. He was seen for me by Dr. Chas. Simon, who reports that he is evidently subject to the disease, as he displays grotesque inco-ordinate movements of the legs, arms and face. Mentally, too, he is inclined to be childish, and is very emotional. He regards himself, however, as in a condition of perfect health and not affected in any way as his brother Peter."

This patient was admitted to the German Hospital during my service, on the 25th of May, 1895. It was very difficult to obtain information from the patient, who was deaf and whose mental condition was very much impaired. Dr. R. Oppermann, who accompanied him to the hospital, stated that his mental condition varied greatly.

His age was given as fifty four; married; occupation, blacksmith. He had not, however, been able to work continuously for some years, and of late had been unable to do any work at all. Twenty years ago, he received some injury to the back as the result of a fall. From that time, though able to go about and work, he constantly complained of pain in the lower part of the

¹ Read at the meeting of the Philadelphia Neurological Society, November 25, 1895.

² Johns Hopkins Bulletin, Vol. 1.

back. It was impossible to get any accurate information in regard to this injury, to which, however, the patient had constantly referred his troubles. They began insidiously about that time, the arms being first affected. The choreic movements were for a long time slight. Of late years they have been progressively more marked. They are increased by emotion and fright. Never lost consciousness; has not suffered greatly from headache; sleeps well.

Condition on admission.—Patient was a large framed man with fairly good muscles; very little fat. Numerous old scars and a few recent abrasions over the arms and shoulders, the result of injuries received in falling. His expression was blank and stupid; he was unable to converse continuously and replied to questions indistinctly. Memory greatly impaired. He from time to time uttered coarse grunting sounds, and in eating made curious noises with the teeth and lips. There was a little drooling of saliva and almost continuous irregular contractions of the facial muscles with occasional grinding of the teeth. The tongue was protruded with a jerk and quickly withdrawn. It was not tremulous. It was covered with a whitish fur. Desire for food was good. The patient, however, was unable to feed himself. Liquid nourishment only could be administered, all attempts at mastication causing violent irregular movements of the lower jaw and face. Bowels moved daily. There was some loss of control of the sphincters; cardiac impulse felt in fifth intercostal space just within the mammillary line. A faint mitral systolic murmur; lungs normal; area of liver dullness normal; spleen not enlarged; urine pale straw, clear, specific gravity 1018, acid reaction; a trace of albumin; no casts; no sugar. The deafness was marked, rendering it difficult to communicate with him. The pupils were of medium size, reacting to light and on accommodation. There was no nystagmus. The temperature ranged from 99° F. A.M. to 100° or 101° F. P.M. The patient was unable to walk or sit in a chair. On one occasion, during his stay in the hospital, he slipped out of bed at night and crawled on his hands and knees some distance along the ward. His habitual position in bed was upon his back with his arms flexed across his breast, his thumbs flexed, adducted and partly enclosed by the flexed fingers. In this position while the patient was awake there were brief periods of rest, but during the greater part of the time there were irregular slow

movements, consisting of alternate extension and flexion of the fingers, hands and arms, as well as of the legs and feet, the movements being more marked and more frequent in the upper extremities. At the same time there were movements of extension and flexion of the head upon the trunk together with irregular slow rotary movements. Attempts at voluntary motion greatly increased the irregular movements. They also became intensified at the time of defecation or the passing of water. During sleep these movements ceased, with the exception of slight twitchings of the muscles of the lower part of the face. The movements were for brief periods under the control of the will. During the examination he could arrest them for periods of fifteen or twenty seconds, the return of the movements being first manifest in the lower extremities. On two occasions violent general convulsions occurred. The knee-jerks were markedly exaggerated. Ankle clonus was not obtained. There was difficulty in determining other reflexes. Sensation was not impaired.

During the night of June 2, the eighth day of his stay in the hospital, the weather being intensely hot, his temperature suddenly rose to 104° F. Great prostration developed, with some abdominal pain. It happened that one of his daughters visited the hospital the next morning and insisted upon at once removing her father to his home in Maryland. The danger of such a course was pointed out to her by the chief resident physician, Dr. Frese. Notwithstanding his remonstrance the patient was placed in the ambulance to be taken to the station. His death occurred in the ambulance a few minutes after leaving the hospital.

Efforts to obtain a post-mortem examination of the body were without success.

I have learned from Dr. Oppermann that Nicholas Neiter had five children. Of these the oldest, a son, aged thirty-four has some irregular motor symptoms, particularly noticeable in his manner of carrying his head, and in jerking about the eyelids. This man is in other respects in good health. The youngest child, also a son, now twenty-two years old, has well marked irregular muscular movements of the upper extremities. These movements began about a year ago. This young man is stated to have "a great deal of temper, which gives much trouble," otherwise he is hearty and well and has a good digestion. He does not appear to be annoyed by the

muscular movements. The three daughters do not show any evidences of chorea. They suffer occasionally from neuralgic attacks, and one of them has a dry, hacking cough. It is stated that "some of Mr. Nicholas Neiter's kin died of consumption at the ages of 22, 24 and 27.

The number of cases of chronic progressive chorea reported in the literature of medicine is now considerable. Several cases have been reported to this Society. I should have thought it unnecessary to read the foregoing note had it not been that the patient was a member of a family in which the disease is now known to have shown itself in the third generation.

REPORT OF A CASE OF TRANSITIONAL PSYCHOSIS.¹

By F. SAVARY PEARCE,

of Philadelphia.

ON Aug. 20, 1895, a slightly built man, thirty-three years of age, with light hair and that peculiar physiognomy which at once suggested the "crank," reported to the Medical Clinic at St. Agnes Hospital, with the statement that he was suffering from a tapeworm. He gave his name John J. R., and was an American. The following record was then made:

Family History.—Mother died of phthisis. Father died of dropsy. No neurotic history or any information of value could be obtained as to his ancestry.

Previous History.—Has always been a person of very slight build and did not remember of having had any very serious ailment. He has always been a great smoker. Alcoholism and syphilis are denied. The first note bearing on his present mental condition reads as follows: Some years ago, he joined a "swindling scheme" and indulged in pocket picking, for which offense he served a sentence in the Eastern Penitentiary.

In 1889 he said he began to have "fits," which would come on at night. He never bit his tongue in any of these fits, but he affirms unconsciousness during them, and there is reason to lead us to suspect that they were epileptiform; possibly hystero-epilepsy. These spells were quite frequent until 1893. Then they became even more frequent; about once a month. His last fit was only six weeks ago. There is never any aura to warn him of an attack. Since the spells have become more frequent (in '93) he says he has "become confused" in his head. He persists that now the confusion is more due to a tapeworm, which for some time and at present is drawing "brain matter" from his head. This brain matter, he thinks, is returned again. He has linked with the delusion of tapeworm the idea of having "in-

¹ Read at the meeting of the Philadelphia Neurological Society, Nov. 25, 1895.

haled" into his stomach some steel filings or dust, which is doing him bodily harm. The sexual desire has been lost, which he also imagines is due to taking cod liver oil; but thinks the oil is doing him enough good otherwise to make up for this latter loss. He has been taking the cod liver oil to "oil his lungs," and firmly believes that he is absorbing some deleterious material from his lungs thereby.

As far as I could make out he has no delusions of persecution, but rather tends to that of grandeur. The *ego* is prominent.

He believes that John the Baptist is about to come to reform the world, and that he will turn out to be the man, but we could obtain no fixed ideas or paranoiacal reasonings as to why or how he was to accomplish the task. He had been the rounds of the hospitals, and was anxious to move on to another one before the *physical examination* was finished. This was a man of small type, light hair, stoop shoulders, expression of mental instability, muscular development fair for his size. Head is well formed, ears not badly set and of good shape. Station is good, with eyes closed and heels placed together. Tongue is protruded straight. Teeth are somewhat decayed, and are not abnormal as to shape or position. Hard palate well formed. Knee-jerks and other reflexes normal. There are no areas of anaesthesia, and no motor paresis can be found. There is a marked antero spinal curve at the sixth dorsal vertebra, but no signs of kyphosis from Pott's disease. The chest expansion is good. Heart sounds rhythmic, no murmur. No evidences of abdominal disease exist.

It was with difficulty that the interne, Dr. Greenleaf, could detain the man after clinic hour long enough to complete the foregoing history, and the patient became for the first time excited when his cunningness revealed to him that his *compos mentis* was, perhaps, being questioned.

We were unable to have him return again, since, at the terminus of the examination he was quite sure he understood his own case better than any doctors.

In seeking more information about the patient we consulted Dr. Ball, who did not remember the case, and Dr. John Bacon, now physician to the Eastern Penitentiary, writes that John R. was a prisoner there in the eighties, and there is no note of his mental status. The man may have given an assumed name, but from his

statements as to his surroundings there, one cannot doubt of his penal incarceration.

Here, then, seems to be a case that is a born moral pervert, a person with a congenitally degenerate brain, who in youth begins swindling and the like, is imprisoned for pocket-picking without any signs of remorse; who finally shades off into an additional aspect of his loss of mental balance (i. e., epileptoid seizures) and now, as the most prominent aberration in the case, he has verged off from a "hyped" individual to an, as yet, inoffensive delusional form of insanity; no delusions of persecution or homicidal tendencies being evident. This transition from impulses to swindle, steal, etc., in youth, to the added convulsive psychosis, and then to a marked delusional state of morbidity, is manifestly, stages only in the mental astigmatism of the unfortunate individual. The question arises as to one's duty in such a case more and more as the study of mental disease advances, and as the newspaper records of instances of sudden or premeditated violence and homicides are brought to public attention.

How soon a man like this one may not assume the title rôle of the duality and become the "John the Baptist" he speaks of, with the radical idea of killing some one of state to "reform the world" it would be difficult to surmise. Under present laws no physician would probably be sustained by the courts in an effort at forcible incarceration.

The complex subject as to commitment here has a gravity to it *pro and con*, which constantly increasing unfortunate statics can alone bring to a right decision.

The timely paper of Dr. Theodore Diller,² read before the Allegheny County Medical Society, brings the matter up in its true light forcibly before the people.

Whether the incendiary work of such so-called cranks, together with the bad moral influence upon a community, and the murders occasionally committed by them, would balance the scales with the financial outlay of the government necessary to maintain an institution for their charge is still an open question.

1407 Locust Street.

² What shall be done with the "Homicidal Crank?" Philadelphia Polyclinic, Aug. 10 and 17, 1895.

EPILEPSY WITH LUXATION OF THE JAW.

By CHARLES E. STANLEY, M D.,

Assistant Physician. Connecticut Hospital for the Insane,
Middletown, Conn.

THE following case of epilepsy does not materially differ in its history from hundreds of cases of the disease, except for a singular accompanying accident, namely, luxation of the lower jaw. Dislocation of the jaw from any cause, at any period of life, and especially in the young, is rather a rare occurrence. Few cases have been recorded resulting solely from the muscular contractions of epilepsy.

Minnie S., aged 27; native of Brooklyn, N. Y.; education meagre; can read and write; mother died of phthisis at the age of thirty-five; father was intemperate; has one sister living and healthy. Her general health was uniformly good up to the age of fourteen years. At that time the menses appeared and were ushered in by an epileptic seizure of considerable severity. According to the patient's statement, this first convulsion resulted in a partial dislocation of the jaw. As she was unable to speak and the trouble was not immediately recognized by either her friends or physician, it was attended with great suffering. Subsequently, the convulsions occurred at irregular intervals, but did not prevent her from earning a living. She was employed in the Brooklyn City Hospital, where she was also treated for epilepsy. No other evidence of degeneration was elicited.

In May, 1888, during a journey by rail from New York to New Haven, she had a series of epileptic convulsions followed by maniacal excitement, in which she was violent and disorderly, and, consequently, was committed to the Connecticut Hospital for Insane. For three months following her commitment, mental excitement seemed to take the place of the convulsions. At the end of that period, she again began to have epileptic seizures followed by no mental disturbance.

August 14, 1888, she had a seizure in which two

molar teeth were loosened, necessitating extraction, and on April 28, 1890, the lower jaw was dislocated during a severe convulsion. Thereafter, luxation of the jaw attending a seizure was the rule rather than the exception. During four years' residence in the hospital, twenty-two seizures were recorded; of these, eighteen occurred during the day and four at night. The convulsions were of a severe type, and, during the initial tonic spasm, the depressor muscles of the jaw seemingly acting inordinately lifted the condyle out of the glenoid fossa, resulting usually in a bilateral and complete luxation. Previous displacements together with the absence of the molar teeth rendered the occurrence of the accident both easy and frequent, and, the absence of the molars, particularly of the lower jaw, also greatly facilitated the reduction of the displacement.

In June, 1892, the patient was discharged and returned to Brooklyn, where she found employment. Nothing further was heard from her until three years later (July, 1895), when she visited the hospital and gave about the same history of herself as related above, except that she had had no return of mental aberration. A letter received from her since, states that she is now a candidate for the epileptic colony at Sonyea, N. Y.

THE NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, December 1, 1895.

EDWARD D. FISHER, M.D., President.

GRAVE'S DISEASE—ŒDEMA OF THE EYELIDS.

Dr. J. ARTHUR BOOTH presented a case of Grave's disease with the presence of a rather rare symptom—œdema of the eyelids. On inspection the diagnosis of Graves' disease had been made, but the examination had revealed no exophthalmos. There was, however, slight enlargement of the thyroid and a rapid pulse. The patient, a girl of seventeen years, was very much frightened when quite young. She had some convulsions following this incident. About the time of her first menstruation œdema of the eyelids first appeared. She now complained of palpitation of the heart, profuse sweating, headache and general weakness. This œdema, the speaker said, was not a true œdema, as it did not "pit" on pressure. The movements of the lids were harmonious. On palpitation, swelling and diffused hardness of the thyroid could be made out. When seen about one month later, *i. e.*, December 2, there was apparently a slight prominence of one eyeball. Four examinations of the urine had been made, but nothing abnormal discovered.

Dr. W. M. LESZYNSKY said that he recalled having seen a man, about fifty-eight years of age, with very marked exophthalmos and goitre, associated with marked œdema of the eyelids. This œdema, however, had been absent in one eyelid for a time, and it had gradually disappeared.

Dr. B. SACHS said that within the last few years he had seen upward of thirty cases of Basedow's disease, and yet he had never observed such œdema in any of these cases.

Dr. BOOTH, in closing the discussion, said that he had been unable to find any mention of more than one case of the kind in English literature. It was interesting that no exophthalmos had been noticed until a few weeks ago. It had been suggested that the œdema was due to paralysis of the orbicularis.

CEREBRO-SPINAL SYPHILIS.

Dr. CHRISTIAN A. HERTER presented a young man, twenty-eight years of age, who gave a history of having had a chancre two years ago, and about one year thereafter developing various cerebral symptoms. The vision was first observed to become diminished in the right eye; then there was ptosis on that side, paralysis of the third nerve, paralysis of the facial nerve and of both trigeminal nerves. After this he developed weakness in certain muscles of the right arm. There was a history of rheumatism in the parents, and of alcoholism in the patient. About one year ago, there was a purulent discharge from the left ear which lasted for several months. One year ago the right eye was struck by a piece of hoop from a barrel. Shortly afterward he began to complain of double vision, and saliva dribbled from the right angle of the mouth. There had been at no time pain in the hand or forearm. Under the administration of iodide the patient had regained some control of the movement of the eye muscles and right eyelid. The physical examination on November 26, 1895, showed the man to be small and fairly nourished, with lateral curvature of the spine, and considerable deformity of the thorax. There was slight ptosis on the right side. The right internal rectus was extremely weak, and there was paresis of the superior and inferior recti. There was sufficient power in the internal rectus to maintain binocular vision, but not sufficient to preserve convergence. The reaction to accommodation was greatly impaired. R. V. was $\frac{2}{3}$ and L. V. $\frac{2}{4}$ ths. Both optic discs were found to be distinctly paler than normal and the vessels slightly narrowed. Near the right disc were two patches of slight choroidal atrophy. All the movements of the face were well performed, and there was no drivelling of saliva. Reaction of the facial muscles to faradism was well preserved. The temperature sense and tactile sense presented fairly well defined areas. Sensation was preserved over the eyelids and was only moderately impaired over the nose. Near the lips, sensation of pain and touch were slightly impaired.

The uvula deviated to the left. The sense of taste did not seem to be distinctly impaired. There was some loss of power in both arms, but this was more marked on the right side. The flexors of the right wrist were weak, and those of the fingers were wholly paralyzed. The power of the pronators and supinators was normal. All the paretic and paralyzed muscles were wasted. All the paralyzed muscles showed the reaction of degeneration to a greater or less degree. The ulnar area of the right hand and lower two-thirds of the forearm showed loss of sensibility to pain, temperature and touch. In the left hand and forearm there was a moderate loss of power in the flexors of the fingers. There was no wasting of the left forearm or any change in sensibility or electrical reactions. In both arms there was slight and rather coarse tremor when the arms were extended. There was no loss of power in the legs, and sensibility was not impaired. Both knee-jerks were absent, but the plantar and cremasteric reflexes were present. There was considerable oscillation on standing with the feet together and the eyes closed. The patient urinated without straining. There was frequent pain in the right hypogastric region, but no "girdle" pain. There had evidently been marked improvement during the past month under the use of iodide. The conditions present in this patient were undoubtedly due to the lesions of cerebro-spinal syphilis. The fifth nerves had been more damaged than the others.

The speaker said that the two points upon which he desired further information were: (1), The exact location of the lesions at the base; and (2), as to whether or not the patient has locomotor ataxia.

Dr. SACHS said that he agreed to the diagnosis of cerebro-spinal syphilis in Dr. Herter's case, but would prefer to have it called multiple cerebro-spinal syphilis. The involvement of a large number of cranial nerves and the *imperfect* involvement of some of these nerves were especially characteristic features. He had made the diagnosis of cerebro-spinal syphilis several years ago in a case in which there had been complete atrophic paralysis of the upper and lower extremities, with ptosis. One critic had looked upon this case as one of neuritis rather than of central disturbance. This view he did not accept, for we had only to suppose that the specific meningitis had extended along the ventral surface of the cord instead of laterally, to explain the symptoms.

The fact that there had been improvement in some of the symptoms under the use of iodide was, of course, very significant. In his opinion, there was no one symptoms of greater value than the complete immobility of the pupil to accommodation and light, or the equal impairment of both of these functions. This was very different from the Argyll-Robertson pupil. If in addition to this there was a multiplicity of lesions, the probability of syphilis was very strong. He would not think of making the diagnosis of tabes in this case, because there was absence of the Argyll-Robertson pupil, little or no pain and no involvement of the bladder.

Dr. HIRSCH said that he did not think we could exclude general paresis of syphilitic character. The expression of the face, the tremor and slight deviation of the tongue all pointed towards this condition, and the diagnosis could not be made without further knowledge of the psychical symptoms.

Dr. HERTER said, that from his short acquaintance with the patient he felt that the psychical symptoms usually observed in general paresis were not present. His mental condition and memory were quite good, and his slight imperfection in articulating seemed to be due to an imperfect co-ordination of the lower speech mechanism. The expression of the face appeared to be due to the ptosis.

The PRESIDENT said, that he would certainly agree with the diagnosis of cerebro-spinal syphilis, and also regarding the points of localization at the base of the brain.

Dr. IRA VAN GIESON said, that he wished to endorse the term "multiple" cerebro-spinal syphilis from a pathological standpoint. Syphilis of the nervous system should be considered in three forms: (1) The multiple variety, appearing in the form of plaques; (2) the form in which there were discrete gummata; and (3) the form in which there were less tangible lesions of the blood-vessels and interference with the nutrition of the blood-vessels.

Dr. SACHS said, the specific endarteritis of the cerebral vessels had been recognized for a long time, but more recently it had been very definitely established in some of the cases of spinal syphilis, that there was a specific endarteritis of the vessels of the spinal cord with areas of softening in the spinal cord. The speaker said that a few years ago he had been inclined to consider these

cases as examples of meningeal infiltration extending gradually through the entire cross-section of the cord.

The PRESIDENT said, that most of the symptoms of general paresis were of later origin than those present in the case under discussion. This patient had already shown improvement, therefore the symptoms must be due to specific infiltration at the base of the brain, and also possibly to softening in the cord from an endarteritis—a condition shown to exist many years ago. This was essentially different from the chronic condition present in general paresis.

REPORT UPON A CASE OF PROGRESSIVE MUSCULAR DYSTROPHY, WITH ESPECIAL REFERENCE TO IMPROVEMENT BY TREATMENT.

Dr. A. WIENER presented a case of this kind with the idea of showing that such a case could be improved by treatment. From a review of the literature, he said, that it was apparent that the tendency now was to bring the disease, formerly divided into spinal and myopathic forms under one head. The patient to be presented this evening, he said, had been exhibited two years ago before this Society. At that time he had been twenty years old, and he had been perfectly healthy up to May, 1892, and had not experienced the slightest difficulty in performing any muscular movements. The first indication of difficulty was in May, 1892, when he began to suffer from vague pains in the region of the spleen and liver on considerable muscular exertion. Shortly after this, difficulty in going upstairs and in walking was observed, and soon atrophy of the lower extremities and back was observed. Finally, the muscles of the neck and face became involved. The patient denied alcoholism or syphilis, and stated that his health had been excellent. He had noticed while engaged in athletic sports that the muscles of the upper extremities quickly became fatigued. In 1893, there was no distinct abnormality about the formation of the skull. His general appearance was that of a person very much emaciated, and there was great difficulty in walking and lifting the limbs. On attempting to stand upright, he exhibited a marked lordosis. When lying down, it was impossible for him to turn over. The muscles were soft and covered with redundant skin. No vasomotor or trophic disturbances were discovered. The deep reflexes were absent on both sides. The spinal column was in no way tender on percussion. Examination of the muscles showed a marked paresis. The muscles of the forearm and hand appeared normal. Mechanical excitability was very much diminished. Electrical examination gave quantitative changes, but no reaction of degenera-

tion. The abdominal muscles were only slightly affected. The orbicularis oris and palpebrarum were the ones chiefly affected about the face. A microscopic examination of a piece of deltoid muscle showed simple atrophy of the muscular fibres, with cell infiltration in the muscle and between the fibres. No hypertrophy of the fibres could be found, and there was no evidence of fatty deposit. The small blood-vessels were filled with blood, and the walls with round cells. The lack of all sensory disturbances left no doubt that this was a case of the myopathic type. No improvement was noticed under the usual tonics and electrical treatment, so it was decided to try the effect of physical exercise carried on daily to the point of moderate fatigue. From half an hour to one hour were devoted to exercises with dumb-bells, Indian clubs and the use of a health-lift machine. There was evidence of very marked improvement in every way. Quite lately he had been able to ride many miles a day on a bicycle. Some of the muscles still showed atrophy. The improvement was especially marked in the muscular movements and in the partial return of the contour of the diseased parts. The speaker said he did not think such treatment would be efficacious in cases developing in infancy, but where there had been a good development prior to the appearance of the disease, this plan of treatment offered a good prospect of success.

Dr. G. M. HAMMOND said, that the heart symptoms in this man were very much like those seen in individuals who had received too much physical exercise at a time when the heart was feeble. This man's heart was dilated and hypertrophied, and it was possible that this was due to a loss of muscular tissue as a part of his disease. He asked if Dr. Wiener thought the arrest of the atrophy might not have been spontaneous and independent of the physical exercise. He had himself seen one or two less extensive cases of dystrophy in which the atrophy was recovered from without any treatment. In one of these cases the atrophy was limited to the muscles of the thumb in both hands.

Dr. WIENER said, that the heart muscle was probably similarly affected as the other muscles and that the general improvement must be accounted for as due to physical exercise, as the history of the case plainly and distinctly shows.

Dr. C. L. DANA said, that he thought there was a class

of cases of progressive muscular dystrophy brought on by excessive muscular work when the person was immature. This form of dystrophy seemed to him to have a different course from the ordinary types of dystrophies. He had seen cases in which he believed the lesion was in the muscles, and in which the course and clinical symptoms were those of dystrophies occurring in acrobats and gymnasts. In these cases, the symptoms usually progressed steadily up to a certain point, and then there was an arrest of the process, and sometimes a very decided improvement. This clinical distinction should be borne in mind in estimating the value of the treatment pursued in this case. He doubted very much if such treatment would have much effect on the more usual form of atrophies. In the cases to which he had referred, the upper arm, shoulder and back were usually affected.

Dr. SACHS said, that the case seemed to him of great importance. He was perfectly familiar with the class of cases referred to by the last speaker—the localized atrophies and those due to excessive muscular exercise. The case under discussion, however, did not belong to this category. When first presented to the Society two years ago, the involvement of the facial muscles was a prominent feature, and the improvement observed had been in the muscles other than the facial ones. There was, of course, room for doubt as to the value of this particular treatment, yet it should be remembered that no improvement had been observed under other methods, but was prompt and decided under physical exercise systematically carried out. The original diagnosis of progressive muscular dystrophy was without doubt correct, and the result of treatment was certainly unique.

Dr. JOSEPH COLLINS said, that where the proton was diseased it should be evident that no amount of mechanical treatment would be of service, but if the form of progressive muscular atrophy were acquired, then treatment including exercise should be of some advantage. He thought, therefore, the case was very instructive. It was begging the question to infer that the improvement was independent of the treatment. He believed this to be a case of progressive muscular dystrophy of the acquired type, no evidence having been brought forward to show that it was either familial or hereditary, and that the improvement was not due to the treatment.

Dr. HAMMOND said, that the man had been an athlete, and a runner, and yet had developed the muscular dystrophy; hence he could not understand why if the muscular atrophy had developed during exercise, it should be arrested and improved by a resumption of systematic exercises.

Dr. HERTER said, that the case was evidently one of the family form of progressive muscular dystrophy, and he felt that the systematic exercise must have had a beneficial effect in bringing about this change. One should not, however, draw too positive conclusions from one or two cases. The case was a most interesting example of what could be done by modifying favorably the nutrition of a part.

The PRESIDENT said, that as far as the distribution of the dystrophy was concerned we certainly found cases in which it was exactly similar, and yet we could not trace the exact etiological factor. Where the hereditary element was not present, it was possible that there was a better chance for improvement under treatment. He thought that we were warranted in trying systematic physical exercise, at least in cases in which the hereditary factor was not especially prominent.

TUMOR OF THE MEDULLA.

Dr. JOSEPH COLLINS presented a pathological specimen giving the following history: S. J. J., twenty-eight years of age, denied syphilis, and had been extremely temperate. The first symptom, numbness in the fingers of the left hand, was observed eight months ago. This gradually spread up the arm, and later on a similar feeling was noticed in the left lower extremity. About five months ago, he became so unsteady that he had to give up his work as a brick-layer, but continued working in a factory till two months ago. About three weeks ago, he observed a "stiff feeling" in the left side of the head, and the left upper and lower extremities felt unwieldy. On November 22, when first seen by the speaker at the request of Dr. J. E. Kelly, the head was fixed and slightly drawn to the left. There was no real stiffness of the head, and no abnormality or tenderness. There was no ocular paralysis; the pupils responded to light and accommodation. The fundus was found quite normal. Vision and color perception were normal. The senses of smell and taste were normal. There was no unsteadiness of articulation. The knee-jerks were both exaggerated, particularly on the left side, and there was likewise left ankle clonus. The triceps reflex was exaggerated on the left side. The left hand was decidedly ataxic. The patient could walk, and could move the upper extremity in every direction. There was a remarkable diminution of the pain sense all over the body, including the mucous membranes. Tactile sensation appeared to be unimpaired. Temperature sense was exquisitely preserved. The patient talked rationally and psychical sphere was intact. Examination of the urine showed albumen, but no sugar. The pulse was rapid, the respirations accelerated, and the temperature 102° F. The opinion was expressed that the intracranial lesion could not be satisfactorily localized, but that there was probably a new formation within the brain subcortically involving the pyramidal projection on the right side. Three days later, the patient was seen again, and was found much worse. He was quite

somnolent and the reflexes had become very sluggish. There was already marked pulmonary œdema. An exploratory opening was made by Dr. J.E.Kelly, the surgeon in attendance, just behind the fissure of Rolando. An hollow needle introduced into the brain in various directions found no unusual collection of fluid. On the second day after the operation his temperature rose to 105° F., although there was no evidence of sepsis in the wound. He died December 1. It was found on autopsy that a very great part of the medulla had been destroyed by the tumor, leaving only a mere shell of medulla tissue. The remarkable feature of the case was that the man appeared to be well in every respect up to a short time before his death, and yet nearly all of his medulla was gone.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, November 25, 1895.

The President, Dr. JAMES HENDRIE LLOYD, in the chair.

Dr. F. SAVARY PEARCE read a paper on

A CASE OF TRANSITIONAL PSYCHOSIS.

DISCUSSION.

Dr. M. V. BALL.—In considering cases of this kind, we must first be sure that the person is not simulating. Many of these cases that I have seen at the Eastern Penitentiary have told me how they have gone the rounds of the hospitals and stayed in them and been taken care of and fooled the doctors and everyone else by simulating disease. One such case, an Englishman who claimed to have epileptic fits and had been in every hospital in the city, came under my notice some time ago. The first day that he came to the prison, he had a fit in the cell. I saw at once that it was not a true epileptic fit and told him so. That is the only attack that he has had in three years.

The man referred to to-night, who goes around presenting these complex symptoms, may do it just in order to get into the hospital, and finding that the doctors are not taking his story as he thinks they should, he goes away. If he had these delusions, it is probable that he would not be so anxious to go away. We must therefore, in these cases be careful to set aside simulation.

Dr. CHARLES K. MILLS.—It is important to be on your guard with reference to simulation in these cases, and it is also important not to consider the fact that these persons state that they have been simulating, a proof that they are not insane. I do not believe that Dr. Ball meant to say that because a man confesses to a

series of simulations he is not insane. Every one who knows anything about that large class of insane, familiarly known as paranoiacs, knows that they are often colossal liars, that deception is a part of their make up. I believe that simulation is not uncommon, in cases that come to the Eastern Penitentiary and to the insane asylum at Blockley, but it is important not to lay too much stress upon the confession of simulation.

Dr. F. SAVARY PEARCE.—The aspect of this man was that of insanity, and was one of the important points in making the diagnosis. While simulation is very common, it seemed to me that this was a true case of insanity.

Dr. JOSEPH LEIDY reported

A CASE OF VIOLENT OCCIPITAL AND TRIGEM-
INAL NEURALGIA AS A SYMPTOM OF
URÆMIA COMPLICATING CONTRACTED
KIDNEY.

Dr. JAMES C. WILSON reported

A CASE OF HEREDITARY CHOREA.

DISCUSSION.

Dr. FRANCIS X. DERCUM.—This history of trauma can scarcely be a coincidence, because it occurs in so many cases. There is now at the Philadelphia Hospital a patient in whom a fall upon the head was the exciting cause. There was another patient in whom heat-stroke was the exciting cause. Both were cases of hereditary chorea. I do not, of course, mean to imply that trauma is a primary etiological factor of a hereditary disease. That would be absurd. We do frequently meet, however, with a history of trauma immediately preceding the appearance of the choreic symptoms, and this fact may simply mean that the nervous system in these cases is more vulnerable than in the normal individual so that an injury causes the symptoms belonging to the hereditary disease to appear.

Dr. F. SAVARY PEARCE.—What is Dr. Wilson's opinion as to the cause of death in his case? Does he think that the solar plexus might suddenly have been involved?

Dr. A. A. ESHNER.—There is another question that arises in these cases and that relates to the conditions present at birth. I am quite sure that some, perhaps many, cases that have been reported as instances of hereditary chorea have in reality been cases with some form of cerebral lesion due to difficulty in delivery. I have in mind a case of cerebral birth-lesion which presents almost typical choreic movements, and which, but for a history of difficult birth and a knowledge of early

onset with increased knee-jerks and ankle clonus, might readily be mistaken for one of hereditary chorea. There lives in this city a family, in which there are several cases of cerebral birth lesion, two of which have been reported as instances of Friedreich's ataxia, although the mistake was subsequently recognized. I have seen two of these children, and they are typical examples of cerebral birth lesion. In these cases, as well as in others of this kind, the motor disturbance began early in life, in contra-distinction to what is observed in chronic progressive chorea. Even in the so-called hereditary cases it is worth bearing in mind, that, in the case of females, transmission by heredity of a contracted pelvis is not less likely than cerebral disturbance to be responsible for chronic chorea.

Dr. JUDSON DALAND reported

A CASE OF COMPLETE HEMIANÆSTHESIA OF EIGHT YEARS DURATION.

DISCUSSION.

Dr. CHARLES K. MILLS.—I have been much interested in the report of this case, because I testified in behalf of this man in the suit in which he was awarded several thousand dollars damages. The case was regarded by some, at least, and perhaps with good reason, as one of hysterical hemianæsthesia, and therefore, a case that probably would in the course of time recover. I took the ground that this case was probably organic and would be persistent, if not permanent. One reason for considering the condition to be probably organic was the manner of injury. This case was due not to an ordinary collision or to a slight fall or jar, but the man was thrown a distance of many feet from a bridge and subjected to an unusually severe concussion.

Dr. Daland referred to the anæsthesia of the face, of the extent of which I have a diagram. It was never perfect in the face. He had an area reaching a short distance from the median line in which sensation was preserved. I have also noted similar conditions in other cases. There was in the Philadelphia Hospital for a long time a patient in whom this type of hemianæsthesia was present, not quite reaching the median line in the face. In this case a small lesion in the internal capsule and a large lesion in the thalamus were found. Taking the history of the case with the fact that the man has remained in the same condition a number of years and has not the ordinary so-called stigmata of hysteria, the diagnosis of an organic lesion has been fairly justified.

Dr. F. SAVARY PEARCE.—With regard to the injury being the probable cause of organic hemianæsthesia in this case, I can quote a case recently seen in the practice of Dr. S. Weir Mitchell: A man, 66 years of age, always very healthy, a robust farmer, was thrown from a carriage and sustained a fracture of the skull,

one and a half inches to the left of the sagittal suture. For some time, there were no marked symptoms of paralysis. This was fifteen years ago. Ten years ago, he developed vertiginous attacks without having had any marked nervous phenomena in the previous five years. Four months ago, there was a sudden increase in the vertiginous attacks with great pain in the right hand and in the arm and then in the calf of the right leg, with some disturbance of speech and some motor loss on the right side of the body. There was no unconsciousness. He went to a physician that afternoon complaining of tingling, some loss of power and loss of sensation on the right side. On examination, it was discovered that he could not see much toward the right side.

This man now has partial hemianæsthesia on the right side, not absolutely defined by the median line. There is some weakness of the right grasp. The knee-jerk on the right is somewhat increased. There is complete right lateral hemianopsia. There is a depressed scar at the seat of the original injury. The eye grounds do not seem to show any change. The pupils respond to light and to accommodation. There seems to be the Wernicke pupillary inaction on the right side.

The case is similar to that reported by Dr. Daland and seems to be one of organic origin, and, therefore, probably bears out the conclusion of Dr. Mills. Accident also seems to have been the etiological factor in both cases, and one being organic there is reason to think that the other is also organic. The lesions possibly may be explained by a sudden localized hemorrhage in the first, and by a gradually developing traumatic fatty and sclerotic vascular change causing final leakage into the primary optic centre and posterior segment of the internal capsule of the left side in the second case.

Dr. JAMES HENDRIE LLOYD.—This is an important case from an diagnostic standpoint. It does not impress me as being necessarily due to an organic lesion. This man has in some respects distinct hysterical hemianæsthesia. All the modes of sensation are involved. He has electro, thermal and tactile anæsthesia and anæsthesia of the mucous surfaces. There is no such thing as hysterical hemianæsthesia if this is not it. He has had slight paresis on the anæsthetic side, which is also characteristic. The eye grounds have not been thoroughly examined. If there were a lesion of the internal capsule involving the motor and sensory strands as profoundly

as in this case, there would hardly be one chance in a hundred that the man would not have hemianopsia. The man has no hemianopsia, neither does he seem to have contraction of the visual fields. The examination of the eye ground hastily made here this evening, does not point distinctively one way or the other. The man was the victim of a most alarming accident and this was the cause of this condition which is characteristic of a profound hysterо-traumatism. The fact that he has had rapid loss of flesh and many of the mental characteristics of these cases, such as the inability to go on with his work, seems to me to be in line with this review of the case.

DR. CHARLES K. MILLS.—Dr. Lloyd made one remark which I think is not sustained by clinical and pathological evidence, namely, that if this were a lesion of the internal capsule the chances were not one in a hundred that the man would escape hemianopsia. There would be many chances that he would have hemianopsia, but in the case with autopsy, to which I have referred, there was total hemianæsthesia and motor paralysis, but no hemianopsia. I do not say, positively, that this man has an organic lesion, but that it is one of those cases in which there is fair reason to believe that it is organic.

DR. JUDSON DALAND.—I have had considerable uncertainty as to the diagnosis of this case, and one of the principal reasons for bringing him here was to develop the differential points in diagnosis. The fact that at the first examination I found the hemianæsthesia so accurately limited to the median line, seemed to be one point in favor of the hysterical character of the affection. The loss of power was really not very great, and the atrophy could be explained upon the point that these muscles had not been used as those upon the opposite side. It seems to me that with an organic lesion there would have been involvement of the motor fibres. Hemianopsia which also not unfrequently occurs in organic affections was also absent. A lesion of the internal capsule, involving only the sensory fibres would be a very unusual and extraordinary occurrence. The diagnosis was also complicated by the fact that this was a medico-legal case. It seems to me that on the whole the evidence favors the idea of a functional neurosis rather than an organic lesion.

American Psychiatry.

UNDER THE DIRECTION OF

R. M. PHELPS, A.M., M.D.,

Rochester, Minn

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ORIGINAL STUDIES AND REPORTS.

Pulmonary Apoplexy, Causing Sudden Death in a Case of Chronic Mania. Autopsy.

By William Francis Drewry, M.D., Petersburg, Virginia, First Assistant Physician Central State Hospital.

The following case is reported, both on account of its pathological interest, and to emphasize the value of post-mortem examination in determining definitely the cause of death in many doubtful cases.

Patient D., a colored woman, fifty-five years old, for nearly two years an inmate of this hospital, was put in her room on the night of January 2, 1896, seemingly in her usual

condition. In a short time she fell asleep. Next morning upon going to her room, it was found that she had been dead, probably an hour.

Since her admission to the hospital she had been in excellent physical health. Repeated examination had revealed no bodily disease. Occasionally there was a temporary distension of the heart (shortness of breath), after violent and protracted mental excitement. There had never been any hæmoptysis, nor any irregularity of the pulse.

Incoherent jabbering, incessant mental disturbance, physical inquietude, insomnia, and other symptoms of mania characterized the case. Hydrobromate of hyoscine was given almost daily to modify these symptoms, and generally with satisfactory results.

For two or three days immediately preceding her sudden death, she was unusually excited, and nothing seemed to produce quietude and sleep longer than an hour or two at a time. Her appetite, however, remained quite good all the while.

What caused the unexpected death of this woman was to me a matter of speculation. There were no previous diseases known to me, nor any visible post-mortem signs to guide me in a correct conclusion. The autopsy revealed the following conditions:

Cranium.—Skull thinner, and diploe more spongy than in the normal. Membranes adherent to brain on either side of the great longitudinal fissure. Convolutions somewhat atrophied, particularly in anterior portion of cortex; sulci shallow; gray matter thin; pia opaque and slightly thickened. The pial veins were not much engorged. There was no intracranial hemorrhage. Slight atheromatous disease of the cerebral arteries was observed, which constituted the only marked difference in this brain from the brains of most cases of chronic mania which I have examined.

The *cord* showed no evidences of organic disease.

Thorax.—The heart was slightly dilated, which was the only abnormality noticed in this organ. The aorta and other large vessels were normal.

In the left lung there was nothing of special pathological interest save a few tuberculous deposits.

On reaching the right lung interest intensified, for here was found the *fatal lesion*. There was general extravasation of blood throughout the pulmonary parenchyma, and besides, a limited laceration of the tissue and a small long clot of blood in the posterior portion of the lower lobe.

This condition, according to Flint, Fleich, Carson, Loomis and other authorities, constitutes pulmonary apoplexy or pneumorrhagia, which clinical experience shows to be usually followed by rapidly fatal results.

No emboli or aneurisms could be found in any of the vessels.

Atheromatous disease of arteries doubtless predisposed the lung to an apoplexy. Violent mental excitement and prolonged loss of sleep, were evidently factors in precipitating the rupture. Furthermore, disease of the brain, through the medium of the nervous system, might have played some part in producing the fatal disease.

The kidneys and all other organs in the abdominal cavity were found to be in a normal state—no evidence of disease anywhere, except that the ilium was interrupted in three or four places by long narrow constrictions, results probably of an old inflammation.

From the above case more than one lesson might be learned :

The cause of sudden or unexpected death may be so concealed that an ordinary examination before death, or of the body after death, would be worth nothing in aiding us to a correct conclusion. Nothing short of a thorough post-mortem investigation would elucidate matters.

Many cases of suspected suicides might be cleared up, mortification saved to family and friends if autopsies were more generally made. Doubtless many deaths have been attributed to suicide, which were caused by some hidden disease.

Among the insane there are many sudden deaths, the causes of which it is impossible to know unless post-mortem examinations be held.

Of course, it is a bit mortifying to say "unknown," still better than "heart failure," "nervous exhaustion," "old age," "exhaustion from mania," and such other vague terms as are sometimes seen in the mortuary table of asylum reports. Let all pretense to silly infallibility of knowledge in such matters be eschewed, and a more persistent endeavor be made in the mortuary and in the laboratory to arrive at the truth.

Surely, there is hardly a case of insanity that does not possess interest to the clinician as well as to the pathologist.

WILLIAM FRANCES DREWRY.

Cardiac and Vascular Diseases in Insanity.

We regard the subject of "Cardiac and Vascular Diseases in Insanity" as a very important subject, more easy of study than are the toxic causes and the bacteria, and far too little studied. We, therefore, more willingly admit, in abstract form, a paper by this name, by J. M. Keniston, of the Middletown Hospital, Connecticut (from transactions Connecticut Medical Society). Dr. Keniston takes up this subject in a way that is only meant as introductory to a more detailed study and a more profound search for hints as to the exact causal rela-

tions, which search he hopes later to make. The present article states the beliefs of the author, and then canvasses the opinions of those who are authorities upon the subject of insanity.

"An experience of over eleven years in the care of the chronic insane, serves to confirm my belief that disturbances, functional or organic, of the heart, blood vessels, or circulation are very frequent; much more so than is commonly believed or admitted; and that they not only cause the death of a considerable number of the insane directly, but are very important factors in a large percentage of cases where death is due primarily to some other cause. It is also my belief that heart disease frequently complicates cases of phthisis, Bright's disease, epilepsy, paresis, chronic alcoholism, etc., among the insane; and that epilepsy specially favors the production of cardiac and vascular lesions. In my personal experience, which comprises seventy-two male epileptics, I have specially observed exaggerated and tumultuous heart-beat, persisting for long periods, and often followed by hypertrophy, and later by valvular diseases.

"It is also my belief that chronic insanities tend to favor the production of functional or organic diseases of the heart and vessels, and this in cases where we can exclude other prominent causes of such disease as, *e. g.*, rheumatism, alcoholism, syphilis, etc., and that they should, therefore, be considered as direct causes. Of course, if this belief is correct, it will follow that acute insanities may also act as causative agents in the production of cardiac disease, but not probably to so great an extent."

He finds only four hospitals which give in their reports heart disease as a cause of insanity; he finds, however, that the personal opinions of numerous alienists hold it to be a common cause. Dr. Gorton, Dr. Wise, Dr. Rogers, Dr. Fisher, Dr. Down, and Dr. Munson are reported as affirming such opinion with greater or less force. Dr. Clouston, in his report of 1888, is reported as follows:

"We had an unusual number of cases under treatment this year where the mental disease had been caused by advanced heart disease. The blood circulation of the brain had first become deranged in that way, and the mental working disordered thereafter. The patients, where the mental disease is due to such direct physical causes, are always interesting as suggesting that we shall one day be able to trace still more of our cases of insanity directly to physical conditions of the brain, and be able to cure them, as was done in some of the heart cases, by direct medical treatment."

Strümpel is quoted as affirming the mental disturbances of the last stages of heart disease. The studies of Dr. Solfanelli of Rome, also show some connection, but he adds that there is

no apparent correspondence between the variety of cardiac disease and the form of insanity which accompanies it. On the contrary, Dr. Savage observes, "I have been impressed by observing many cases suffering from mitral disease, also being subject to melancholy. With aortic, or both aortic and mitral disease, the symptoms may be either melancholic or maniacal; but I am inclined to think that with simple aortic disease and with hypertrophy of the left ventricle, it is at least not uncommon to meet with acute mania and exaltation of ideas. In doubtful cases of men with exaltation of ideas, I expect to find post-mortem hypertrophy of the left ventricle and atheroma of the aorta with more or less of brain change." Van der Kolk, Fothergill, Bevan Lewis are each quoted as affirming some vague relationships. Dr. Godding's report is quoted as showing heart disease common among the epileptic insane. There being nearly fifty-four per cent. of deaths with heart disease. Some earlier writers are also quoted as claiming like relationships. Dr. Greenless in 218 consecutive autopsies, found that thirty-two deaths were from heart disease, and over one-half showed more or less of pathological change. From such reports Dr. Keniston thinks that, at least, six per cent. of all deaths are due directly to heart disease.

Concerning cardiac and vascular diseases as results of insanity, the author is likewise unable to present positive facts as much as opinions and probabilities. He says:

"It is a positive conviction on my part, honestly held, that maniacal excitement of great intensity and long duration; excessive emotional disturbances or perversions; impairment of nutrition; defective circulation, due to long continued and abnormal postures, indolence, depression, stupor, etc., apart from and beyond the tissue changes, found in organic or alcoholic and other toxic insanities, are powerful factors promoting first, functional, and later, organic lesions in the heart or vessels. If the condition of the body affects the mind—if the material affects the so-called immaterial, for mental action, on whatever molecular changes or cell-action it depends, is in its final action intangible, why should not the reverse be equally probable? If mental actions, emotions, etc.—either with or without conscious volition—can produce or cause physical (muscular) actions, why cannot mental disorder or disease produce or cause physical disorder or disease?"

Dr. Bevan Lewis is quoted as describing how the functions of organic life are all depressed in character. Griesinger described the heart sounds as being "indistinct during paroxysms of excitement and becoming clear during moments of calm." Dr. Hunt is quoted as to the effect of emotional excitement and disordered sympathetic! Corvisant, that frequent excitement tends toward cardiac hypertrophy. Dr.

Burman, that "in ordinary insanity there was a greater tendency toward disease of the heart than in the population generally." Dr. Loomis, and Delafield and Prudden, that excitement produces hypertrophy which may become pathological. Tissot and Greenless and others are quoted as in line with the above. He concludes the article as follows :

"While starting with the preconceived opinion that insanity, especially by prolonged motor excitement, violent emotions, perverted nutrition, vicious habits, etc., is an important factor in the production of disease in the heart or blood-vessels, healthy prior to the onset of mental disease, it has been my effort to subordinate my beliefs and views to facts, and to assume in the matter a judicial position, marshalling facts and opinions against as well as for my theory.

"To sum up, then, the annual reports of insane hospitals, as a rule, give few statistics or details as to heart disease as a cause of insanity. They also rarely give it as a complication. Hence, at present, it seems to me that while the general sentiment of alienists is in favor of the theory that cardiac or vascular diseases are important factors in the production of insanity, sufficient evidence to fully establish this theory is not yet available.

EDITORIALS.

The Reason for Insanity. Insanity has been quite accurately stated to be more a "symptom" than a "disease;" that, for example, it bears to the brain more the relation of pain to bodily disease than of typhoid fever to the bodily health. Like a symptom, also it has no type. It may be said to be like facial expressions, no two are alike. At times opinion seems settled that insanity does not exist without some temporary or permanent brain change, yet insidiously we still have at times thrust toward us the idea of insanity, as on the one hand by itself, or on the other, as directly from a physical lesion elsewhere than in the brain.

Supposing that we consider ourselves established in the conviction that the brain is always the source, how shall we consider the various views? First, we will divide the causative factors as is common, as first, nervous instability, a predisposing factor; second, one or many of a multitude of exciting factors. Nervous instability, then, we would regard as the all-important factor, and as a factor theoretically if not practically to be found in every case. The second or exciting cause being considered to be practically unknown in the majority of cases.

This being assumed as our basis, how shall we look upon the bodily diseases so persistently set before us? Of these,

gynæcological lesions have been exceedingly common, the uterus having been assumed practically as a subordinate regulating centre for the mind. That men were insane in about equal proportion to women; that women insane had the same lesions (minus their exaggeration by neglect); that there was no good logical connection between the two elements, did not seem to count. The trend of the past five years has, however, been a gradual retreat from such ideas.

Mentioning this merely as a prominent example, however, we turn to consider that more general subject "Bodily Disease as a Cause of Insanity." Dr. Bondurant has the most pertinent recent article along this line. Bodily disease surely does produce the symptom (mental impairment). Ordinary delirium is a common example. But need we call upon the much abused "reflex neurosis" for the connection; are not the effects of changes of nutrition, changes in blood purity, toxic elements and toxic influences enough? We know the cortical changes needed to produce insanity are exceedingly minute. The recent studies of Berkely and Andriezen have tended to show this, as well as to afford us a more tangible basis for our theory, while clinical observation upholds it fairly well. Then, too, it is more logical and in accord with the analogy of the mental effects of grosser lesions and motor localization.

Bodily diseases, according to the outline, can be considered rightly as causative of mental diseases, but in a more clear and straightforward way. The brain as a physical organ is subject to the same causes as other organs. The degenerative, atrophic or retrograde changes of age, of alcohol, of syphilis, etc., would be made manifest in the brain as a bodily organ, or, perhaps, in its blood supply to changes in which it is peculiarly sensitive. Arterial changes might work most damage in kidney or most in the brain. Nutritional change might affect the whole body, yet show chiefly in mental symptoms. From toxic effects and from bacteria the brain need not be considered exempt.

But a word as to that far more difficult element, "nervous instability." No one has seen it nor any analogue to it. We perforce must simply fall back on it as a theoretical explanation in accord with a multitude of facts. There is no doubt at all that by reason of some inherent structure some brains are more easily diseased than others,—the same causes and conditions being assumed. That heredity is the main cause of this predisposed state is only incidental to our main thought here. In bodily diseases like consumption this is recognized. That we cannot designate any form, condition or relative state of the neurons to account for this, does not invalidate it as a working hypothesis. Not insanity alone, but the differing tempera-

ments and differing reactions to the stimuli of pain, cold, fever, grief, etc., all point to like explanation.

The above seems to us to give the more advanced views as to causation as outlined in the multitudinous literature of the past few years.

ABSTRACTS.

Are Work and Worry Causes of Nervous Affections. By L. Harrison Mettler, *Medical Record*, Sept. 7, 1895.—The practical purpose in this essay is to advocate a

combination of the physical and the mental elements in ones life as a preventive, and as a cure of neurasthenic and other nervous tendencies, and to advocate the avoidance of monotony. To not advise the athlete to turn wholly to sedentary pursuits, and habits, but to introduce these elements as a variety in his life. To not shut the studious man entirely from his books, but to balance the mental work, by the element of physical labor or enterprise. To procure for each one the balanced elements and the variety thereby secured.

The theory on which he bases this treatment, places the spinal gray matter as the central active nerve centres, while the cortical area on the one hand, and the musculo-cutaneous on the other, are both peripheral in their meaning, and must be kept in health by a well-balanced action. The initiation of motor impulses in the cortex, and the initiation of sensory impulses in the cutaneous surface, form two extremes of a balance the fulcrum of which is the gray matter of the cord. A well-balanced nervous system is made by the equitable development of each; the monotonous development of either one tends toward neurasthenia or other diseased, unstable nervous condition.

Over work does not bring break-down except it be monotonously on one side this balance, and then as a rule only when heredity has provided a poor nervous system. Worry also would be more the result than the cause of neurasthenia or mental trouble; it is "the cry of the nerves and nervous elements on the psychic side for more rest, or more exercise to restore the normal equilibrium of the whole."

Clinical Study of the Individual Insane. By Dr. H. A. Tomlinson, (*Northwestern Lancet*, August 1, 1895).—The author's purpose in this article is to advocate

careful bedside observation and detailed record of the individual insane. He says it is seemingly "strange that the clinical study of the individual should not have been recognized to be as important in insanity as in general disease." He deprecates "persistence of superstition concerning the nature of mental perversion" and "the tendency in hospitals to con-

sider maintenance and discipline the most important part of the treatment of the insane."

He would study in every case the individual under four headings. Heredity and life history; anthropometry; general physical exploration with urinalysis and microscopic study as indicated, and neurological examination proper. Nurses as an adjuvant are almost essential. History is carried into both mental and bodily diseases of self and family. All menstrual and puerperal states and conditions of women are included.

Anthropometry is believed to greatly aid in prognosis,—the stigmata found by cranial measurements indicating a downward tendency. The general physical examination is like that in a general hospital, only more complex and labored by reason of the patient's inability to help. The neurological examination includes all the sensory and motor phenomena with especial stress on study of the muscles of expression.

This makes a very labored and long study, but it acts well by its impression on the patient and is more directly valuable because only by study of every physical element can we know in any especial case of the condition of each organ and each mental element; while the interdependence of the nervous system and the rest of the organism makes it an essential.

As results of such studies, in his opinion, he finds stigmata of degeneracy in all cases of insanity, the difference being one of degree; he finds the symptom groups not distinct entities; he finds, that accompanying cerebral defect, there are commonly defects elsewhere, and that mental aberrations are mainly matters of degree.

***The Breaking Strain
of the Ribs of the
Insane.***

By Alfred W. Campbell, M.D., Pathologist County Asylum, Rainhill, Lancashire (*Journal Mental Science*, April, 1895).—The paper shows a commendable painstaking effort to clear up one of those vaguely known subjects which have drifted about half believed, in the treatment of the insane, namely, "Are the ribs of the insane more fragile than those of other people." The author by tests with Dr. Chas. Mercier's specially devised apparatus, has tested in the case of fifty-seven autopsies, and moreover has made the subject much more conclusive by making microscopic studies of sections of such ribs, showing clearly the loss of, or reticulation of, the compact tissues to be the main cause.

He finds the breaking strain of the ribs in general paralytics to be below the normal, in the proportion of 62 pounds to 44.8 pounds. Of senile insanity in females 11.8 pounds represented the strain, females having a much less normal, however, than men. (About one-half.) Other insanities show in

thirty-five males and an average breaking strain of 41.04 pounds in males, 20.68 pounds in females. There is always a difference between the breaking strain of the convexity and the concavity and the strain diminishes from age of thirty-five toward senility (supposably these two statements are true in the sane as well as the insane, though not so stated). It is to be noted also that he finds the greatest reduction of breaking strain at the end of degenerative psychoses.

A Brief Study of the Physiological Epochs that Predispose to Insanity, with Observations on the Management of each.

By Willian Phillip Spratling (*Medical Record*, Oct. 19, 1895).—The author first quotes Mercier as follows: "Insanity is in mathematical terms a formula of two variables; that is to say, there are two factors and only two in its causation and these factors are complementary. Both enter into the causation of every case of insanity, and the stronger the influence of one factor, the less of the other factor is needed to produce the result. These factors are heredity and stress."

This dictum the author accepts, and goes on to describe under predisposing elements, six epochs which are, in his opinion, most important. The epoch of early childhood; the epoch of puberty; the epoch of maternity; the epoch of heredity; the epoch of the menopause; the epoch of senility. Of these, the epoch of childhood in only one covering those accidents and diseases predisposing to insanity later in life. Dentition, traumatism, heat, shock, fevers, malformation, etc., are mentioned. The epoch of puberty is accompanied by excitomotor exaltation, during the evolution of the generative functions, which is apt to reveal dormant inherited vices. In the female the change is more short and abrupt and the result more apt to be an "acute neurosis."

The child-bearing epoch has various subdivisions with varying causative factors. It is most important in relation to the causation of insanity. The epoch of heredity is that age at which ancestors have tended to develop insanity. The epoch of the menopause is one in which the type of insanity is constant and in which "painful mental states invariably prevail. The epoch of senility is designated as a physiological loss of mind; a dementia. Melancholia is common in this retrograde change.

Periscope.

UNDER THE DIRECTION OF
ALFRED WIENER, M.D.

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EXPERIMENTAL, PHYSIOLOGY.

Sur les Modifications Des cellules Nerveuses Dans Les Divers Etats Fonctionnels.

E. Lugaro, *Lo Sperimentale*, XLIX., fasc. 2, 1895. *Resume de l'Auteur, Archiv, Italiennes de Biologie*, XXI., 1895., pp. 258-281.—In this resumé the author gives the results of a series of observations made upon cytological changes that take place in nerve cells. He states that he was led to investigate the question because of the great lack of uniformity in the published results of other workers in the field. Thus, Nissl and Vas attribute an increased colorability of the chromophyllic substance to an increased activity of the cells. Hodge and Mann on the contrary to a state of repose. Vas has described an enlargement of the nucleus as due to stimulation; Hodge makes it a reduction. Korybutt-Daszkiewicz and Vas have described an increase in size of the nucleus as a result of fatigue; Hodge and Mann state that the nucleus is decreased in size and somewhat shrivelled.

The author's experiments were conducted on much the same lines as were those of Vas, Hodge and Mann, the cervical sympathetic ganglia of rabbits being electrically stimulated. The ganglia were fixed in absolute alcohol, stained with Methyleneblue, differentiated with alcohol-aniline oil, cleared in oil origanum, and xylol and mounted in balsam. A number of graphic representations are given and the details of the following changes are recorded.

1. Dimensions of cells. The greatest diameters were found in those cells that were active after repose and the smallest in those at rest after excessive fatigue.

2. Dimensions of the nucleus. Changes analagous to those found in the cells were recorded.

3. Form of the nucleus. The author failed to find any

shriveling in the nucleus, although they were somewhat smaller after excessive stimulation.

4. Position of the nucleus. No variations of importance were observed.

5. Modifications in colorability. No marked changes in this respect were found by the writer. He, moreover, rejects, and, to us, "for good reasons, the fantastic terms of Nissl, apyknomorph, parapyknomorph, and pyknomorph," and states that the great natural variability in the cells of any given ganglion will not admit of Nissl's classification. The author is inclined, however, to grant that excitation may augment to a slight degree the amount of chromophyllic substance, and fatigue, lessen it.

6. Position of the nucleolus. No changes of any value could be found by the writer.

7. Dimensions of the nucleolus. These were considered as of some importance. Moderate activity having a tendency to increase the size of the nucleolus, which gradually becomes smaller under the influence of excessive fatigue.

JELLIFFE.

The New Formation of Nerve-Cells in the Brain of the Monkey Following Complete Ablation of the Occipital Lobes.

By Dr. Alexander N. Vitzou, of Bucharest. (*La France Med.*, Sept. 27, 1895.)—The removal of the occipital lobes of monkeys and dogs, causes complete loss of vision. Repeating this experiment on a monkey Dr. V. observed that the animal began to notice objects and people again—but with difficulty—about four months after the operation. After two years and two months had elapsed, the perception of objects was greatly ameliorated, the monkey being able to avoid obstacles, which was by no means the case during the first months following the operation. Then the brain was opened again, the trephine openings having been closed by a layer of strong connective tissue, and the space occupied previously by the occipital lobes, was found completely filled out by a newly formed substance, which on microscopical examination was found to contain nerve fibres and pyramidal (nerve) cells. There was more neuroglia and fewer nerve-cells than in the occipital lobes of an adult, but nevertheless there had been a new formation of nerve tissue. This case proves the possibility of regeneration of nerve tissue in the brain if the nutrition of the other parts of this organ is maintained. The explanation is given that the sense of vision improved by the presence of the newly-formed nervous elements. The monkey having been subjected to a second operation, lost his sight in both eyes completely again, and remained in this condition for three and a half months.

Since then he seems to give some (uncertain) signs of returning visual sense.

This observation is in opposition with the theory generally accepted, of the non-regeneration of nerve-elements in the central nervous system.

MACALESTER.

PATHOLOGICAL.

A Case of Secondary (Tabetic) Paralysis With Ascending Degeneration in the Antero-lateral Tract (Gowers).

The case is of especial interest in a pathological-anatomical way, on account of an ascending degeneration which was present in the antero-lateral columns of the cord.

The history of the patient is given in full, and shows that during the first part of the patient's illness he was clearly a paranoiac individual. Only during the latter course of the disease did the symptoms, which are so characteristic of *Tabes dorsalis* and general paralysis, present themselves.

The autopsy showed the following pathological condition present in the central nervous system. Dura mater slightly thickened. Pia also thickened and gelatinous like in structure. Fissures wide and gaping. Convolutions small and atrophied. In places the pia is hazy and adherent to the hemispheres. Third and lateral ventricles are dilated and filled with a light yellow but clear fluid. The ependyma in all the ventricles, especially the fourth, is covered with granulations. The brain substance is soft, and contains a moderate amount of blood. In the spinal canal, dura and pia present the same condition as in the skull. A cross section of the cord shows a degeneration in the posterior columns. A microscopic examination of various portions of the central nervous system showed the following:

First.—That the degeneration in the posterior columns corresponded to that which is characteristic of *tabes dorsalis*.

In Lissauer's tract, throughout the whole length of the cord, there is a marked disappearance of nerve fibres. In Clark's columns this same condition was noticed, especially in the region of the lower half of the dorsal cord.

In the region of the fifth cervical nerve a degeneration of the antero-lateral tract was found. This degeneration is much more marked in intensity above this region than below, where it seems gradually to fade away. From a point opposite to the lowest part of the pyramidal decussation, it also gradually diminishes in intensity upwards. In the medulla the hypoglossal nucleus and root fibres were very much affected. In the hemispheres a marked atrophy of the finer nerve fibres was found.

W. Linke. (*Centralblatt für Nervenheilkunde und Psychiatrie, December and November, 1895. XVIII.*)—The author reports a case of Paranoia, during which disease *Tabes* made its ap-

The pathological picture thus presented was in keeping with the clinical manifestations. The articulation disturbances were due to the bulbar affection. The tabetic symptoms to the posterior column degeneration. And the final paralytic picture corresponded to the chronic inflammatory and atrophic process in the cerebrum.

The author wishes to emphasize the following points: That the paranoia was the primary disease, and probably developed through hereditary predisposition.

That the latter were secondary, and occurred during the later years of the patient's life, as the history and microscopic examination of the cord proves.

That the antero-lateral tract, which was formerly supposed to end in the nucleus lateralis, and, according to the latest investigations is supposed to extend throughout the entire length of the medulla and reach the cerebellum with the peduncles, is substantiated by this case.

This case will not stand proof for the statement of the fact, that the posterior roots of the cord connect the with antero-lateral tract of the opposite side, since the degeneration in the columns of Goll is a symmetrical one, while the degeneration in the antero-lateral tract, in its form, but not in its intensity, differs on the right and left sides.

The rest of the paper is taken up with a discussion on the relationship between general paralysis, such as followed in this case, and paranoia. The author believes that such paralysis is always secondary to paranoia. He lays great stress upon the fact of the occurrence of fixed delusions in the psychological picture of the paralysis.

A. WIENER.

CLINICAL.

A Case of Infantile Progressive Paralysis. Bresler (*Neurologisches Centralblatt*, December 1, 1895, No. 23).

The occurrence of these cases is extremely rare. The history of the author's case is as follows:

Patient when first observed was 13½ years old. Insanity has occurred in several members of the family. Patient was not particularly bright at school. Examination just before admittance to the hospital demonstrated the following facts. Her entire bodily development is poor. She had an attack of chorea earlier in life. Organs of perceptions seem to functionate normally. Patient is timid and restless. With regard to her disposition and demeanour, she is completely helpless and demented.

After admittance, a complete examination showed the following condition: An anæmic and poorly nourished individual. Left pupil dilated and the response to light and accommodation very sluggish. Patellar reflex on both sides very much exaggerated. Gait is a stumbling one. Patient stands and walks with bent knees.

Mental condition.—Expression of the face is one of anxious care. Does not speak unless spoken to. Is stubborn. With regard to space and time, is well able to locate herself. No interest in her surroundings. At one time refuses food and then again cannot obtain a sufficient quantity. During the first three months of confinement, patient became more and more stupid. At the end of the fourth month, on account of the extreme exhaustion, had to be confined in bed. There was noticed now a mild paresis of the facial muscles; decubitus; a distinct motor restlessness; constant picking of bed clothes. Temperature fluctuated between 35° and 36° C. At the beginning of the fifth month, a convulsion took place suddenly, followed by three more attacks within a very short space of time.

In her apathetic and stupid condition after these attacks, for minutes at a time, it was noticed that the patient would glance in a certain direction, sob and make defensive movements as if she wished to drive something away. Very little nourishment was now taken. Defecation occurred involuntarily. After six days, with symptoms of a general paralysis and no more convulsions, patient died.

Autopsy.—Dura was found thickened. Arachnoid dull in color and œdematous. A large amount of serous fluid was found in the arachnoid space. Pia strongly adherent; convolutions very much atrophied; fissures wide open; surface of brain a pale gray color; brain substance hard; on section numerous dilated veins were noticed; the ependyma of the lateral ventricles very little, that of the third and fourth exceedingly rough and granular in appearance; cortex very much atrophied; no areas of softening; weight of brain with pia was 1050 gr.; microscopic examination not as yet published.

The author wishes to emphasize the following facts:

First. That the chorea which occurred in the earlier life of this patient may have been the first expression of a lesion which occurred at that time.

Second. The absence of any bulbar symptoms, and not the slightest disturbance in articulation. The vocabulary was deficient and grammatical errors were frequent.

With regard to the etiology, hereditary syphilis must be thought of in this case, as the *post mortem* find in the liver was very suspicious of this lesion.

A peculiar phenomenon noticed by the author in this case, which has heretofore not been recorded in any other case, is what he describes as crossed alternating deviation, viz., that the eyes would be turned in one direction and at the same moment the head would be turned in the opposite direction. No visible lesion could be found to account for this phenomenon.

A. WIENER.

Book Reviews.

THE PATHOLOGY AND TREATMENT OF VENEREAL DISEASES. By Robert W. Taylor, M. D., Clinical Professor of Venereal Diseases at the College of Physicians and Surgeons (Columbia College), New York; Surgeon to Bellevue Hospital; and Consulting Surgeon to the City (Charity) Hospital, New York. Philadelphia. Lea Brothers & Co., 1895. \$5.50.

A full and thorough modern hand-book of the whole subject of venereal diseases, this work is marked, at once, by the fullest knowledge of all modern researches, the widest experience, the soundest judgment, and the most sober conservatism. The portrayal of gonorrhœa is remarkable. After a description of the gonococcus, its pathogenic action is satisfactorily explained. Passing to chronic relapsing gonorrhœa, the author describes and figures the different forms of gonorrhœal threads; the invasion of the tissues by the gonococcus is considered and illustrated by a plate; and the pathology of chronic gonorrhœa and of stricture of the urethra is treated. In a long chapter upon the etiology of the disease, Dr. Taylor refuses to subscribe to all the claims of Neisser and his followers. By a striking figure of cultures made by Dr. Henry Heimann in the laboratory of the College of Physicians and Surgeons, as well as by a study of the staining tests, the author shows how difficult it may be to distinguish diplococci obtained from a normal urethra of a virgin from the gonococcus. He gives reasons for suspecting that determinations of gonococcus in the laboratory of Neisser and others have often wanted much of the requisite sceptical criticism; and he strongly inclines to the opinion that the gonococcus may remain latent in the urethra for long periods. We quote a few sentences from the concluding paragraph. "The trend of all this is that this subject of the etiology of gonorrhœa is yet in an unsettled state, and that opinions should be formed in all cases with care and reserve. It is possible for a man to have a urethra discharge containing true gonococci which he contracted from a woman who never had gonorrhœa. According to doctrines now largely prevailing, the gonococcus in the male is presumptive evidence of guilt of the woman. Such a doctrine is too absolute." The word *presumptive* here must be a slip of the pen for *conclusive*; for to deny that true gonorrhœa is presumptive evidence of the impurity of the woman is to deny that it affords any reason for suspecting her.

A brief chapter on the period of incubation of the disease gives a table of 505 cases from the author's own clinic, and another of 479 cases collated by Finger. Both tables show from 3 to 6 times as many outbreaks after 7 and 14 days than on the neighboring days; and this is in part the factor of inaccuracy in the patients' numerical statements. In the same way, every census shows excessive numbers at ages divisible by ten. But the large numbers of 7 and 14 day incubations may also be partly due to the circumstance that men who are paid on Saturdays are more apt both to become infected and to go to the doctor on that day. But this is not the only suspicious circumstance about both these tables. Namely (speaking, for convenience, as if all the patients had become infected on the same day), if we divide the number of outbreaks on each day by the total number which are yet to occur, we get a fraction representing the probability that a patient

with incubating gonorrhœa will perceive a discharge within 24 hours. This ought to represent the activity of the gonococci; or, at any rate, any physician would expect the ratio to diminish after a certain maximum. But the figures show, on the contrary, a marked increase up to fourteen days or more. The ratio on the first day is .01, on the second .08; on the third, fourth, fifth, sixth, and seventh days, the ratio is about .22. On the eighth day, it is greater; and thereafter although, owing to the small numbers of cases, the numbers are irregular, the ratio on each day exceeds 0.30. The obvious explanation is, that the patients are utterly inobservant, and never notice the discharge, until their attention is called to it by an itching or burning sensation, or by some other symptom which increases from day to day. Thus, the conclusion which these statistics, when properly sifted, tend to support, if they support any conclusion at all, is that the real regular period of incubation of gonorrhœa is three, four, or five days. Upon the question of whether there are some cases in which the gonococcus may be received into the urethra and remain for a longer period, mere tables of wholesale statistics can hardly throw any light.

The hundred and odd ages given to all the above discussions are perhaps the most remarkable in the book. The author next passes to the general picture of acute anterior gonorrhœa, and then to its treatment. He recommends at tempts at abortion in cases seen "on the first and perhaps the second day," if the patient, after clear warning of the pain and uncertainty, desires it. Otherwise, the urine being rendered moderately alkaline and as bland as possible, little is to be done beyond the application of hot water. The account of the other varieties of gonorrhœa and of its complications brings us to the 431st page. The chapter upon the disease in women is particularly valuable. Fifty pages follow upon vegetations, cancer of the penis, elephantiasis of the genitals, varicocele, hydrocele, and hematocele.

Seven chapters, occupying about forty pages, are devoted to the chancre. Its etiology is discussed with the author's customary care and caution. He entertains no doubt "that many cases of chancre are developed through non-syphilitic women in whom, owing to various causes, an exacerbation has taken place in some lesion of the genitals that previously was innocuous, and which then gave forth an active form of pus." He also says, "it is not very uncommon to see chancroids in men who have had no sexual exposure whatever, such lesions being perhaps due to some inherent peculiarities of their tissues, to some diathetic condition or to debility, or to some contamination with particles of dirt that have lodged upon their genital organ." It need not be said that Dr. Taylor gives no credence to the view that the chancre is a pathological entity.

Syphilis occupies nearly half the book, or something less than five hundred pages. Our space does not admit anything like an account of their contents; we can only indicate a few of the topics which have been treated in a particularly interesting manner. A general resemblance between syphilis and diphtheria is traced out, with a view of strengthening the theory of the microbe origin of the former. The pathology of the syphilitic infection and the syphilitic processes is well illustrated. The various symbioses of the disease are thoroughly considered. The chapter upon hereditary syphilis is instructive. That it may be transmitted from the father is forcibly argued. The author also concludes that "in all probability the toxic principles of syphilis may be conveyed through the utero-placental circulation from mother to fœtus, and *vice versa*, and that full infection may, in rare cases, occur when the filtrative power of the placenta has been impaired by morbid changes." In regard to the therapeutics of syphilis, the tonic treatment is condemned as "unscientific, irrational, and mischievous." Dr.

Taylor advocates a somewhat energetic exhibition of the protiodide, the tannate, or the gallate of mercury for six months, followed by inunctions, and subsequently by a more variable treatment, but usually the double iodide of mercury and potassium, and still later by iodide of potassium with a mercuric salt. He also recommends hypodermic injections, while denying the claims that have been made of their peculiar efficiency. As for fumigations, while admitting their utility, he considers the practices of many bath-attendants in disregard of physicians' prescriptions, a decided drawback.

There are upwards of two hundred admirable illustrations in the book, many of them in two colors, together with seven colored plates. These have been "selected from a vast number of typical cases" that have occurred in the author's practice.

The chapter on syphilitic affections of the ear have a special value as being the work of Dr. J. A. Andrews. W. K. OTIS.

DER MENIERE'SCHE SYMPTOMENCOMPLEX. DIE ERKRANKUNGEN DES INNEREN OHRES. Dr. L. V. Frankl-Hochwart. Nothnagel's Specielle Pathologie und Therapie.

In this brochure of 122 pages, 75 are devoted to the Meniere Symptom Complex and the remainder to the diseases of the inner ear.

The author gives a brief chapter on the history of the affection up to the time of Meniere and a too brief citation of the work done on the disease since that time. Under the head of "Terminologie" in the following chapter F—, analyzes the classifications of the disease and states that he considers it best to make a collective name for the disease as the "Meniere Symptom Complex." He proposes the following classification:

Meniere Symptom Complex. An affection accompanied with deafness and with a triad of symptoms, Giddiness, Vomiting, and Buzzing in the ears. Four main groups.

I. Coming on suddenly with previously healthy auditory apparatus.

(a.) Apoplectic form. True Meniere type.

(b.) Traumatic type.

II. Disturbance accompanying acute or chronic disease of the ears.

(a.) In acute or chronic disease of the middle ear.

(b.) In disease of the Labyrinth.

(c.) In disease of external ear.

(d.) In disease of the acoustic nerve, alone, or in combination with tumor of the brain.

III. Disturbance due to external causes. Catheritization, Washing the ear, Galvanization of the head, etc.

IV. Pseudo Meniere Disturbances.

Paroxysmal occurrence with intact ears and no external influences. Hysteria, Epilepsy and occasionally Hemisrania.

The following chapter discusses in detail the symptoms of each of these types, makes a careful analysis of the published literature, and gives a number of type histories of each class of cases, in some cases as in the Apoplectic types the whole available literature of (27) cases is given and analyzed.

Chapter four deals with the general symptomatology. The individual symptoms analyzed are:

1. Dizziness. This, the author states, exists in two main forms: In one, the patient believes that the ground is falling beneath him, and in the other, surrounding objects seem to whirl about.

2. Buzzing in the ears, generally continuous.

3. Vomiting, seldom painful.

4. Falling.
5. Loss of consciousness. This is of importance in the differential diagnosis. In general, loss of consciousness is not complete, and if so is but transitory.
6. Eye symptoms. Turning of the eyes, nystagmus, and transitory diplopia are mentioned.
7. Headache is a most constant symptom, its location varying greatly.
8. Ataxia
- 9, 10. Accompanying and associated symptoms, as anxious countenance, cold and clammy skin, and hysterical and neurasthenical phenomena are discussed.

After a careful detailed account of the pathological findings the author states in chapter five, that it is determined that the Meniere Symptom Complex is always due to some lesion of the auditory apparatus, and after a review of the physiology thus far known, he comes to the conclusion that in the apoplectic type of cases the cochlea and semicircular canals are affected. Lesions of the cochlea produce the beginning deafness and affections of the semicircular canals, produce dizziness and disturbance of the eye muscles. The cause of the buzzing is uncertain. In the other types there are a number of causes among which lesions of the cochlea, middle ear and acoustic nerve are the most abundant and important.

The remaining three chapters treat rapidly of the Diagnosis, Prognosis and Therapy. The author believes in making a sharp contrast between the Apoplectic type and the others. This chapter on diagnosis seems rather involved. The author states that if the hearing is not involved the case is not one of true Meniere Disease. Under prognosis the author calls to mind that a complex of symptoms is under discussion and not a true disease and therefore the prognosis must depend upon the type. The Apoplectic type does not seem directly prejudicial to life. In the Treatment the same point of view must be kept in mind. For the Apoplectic type, rest, cold and leeches may prove of benefit. In the remaining types the ears must be treated. Pilocarpine, Quinine, Sodium Salicylate and Electricity are mentioned. The article closes with a partial bibliography.

Diseases of the Inner Ear.

In the remaining pages a rather schematic and rapid presentation of the diseases of the Labyrinth, the Acoustic nerve and its intracranial attachments is given. In general, they consist mainly of the symptoms and methods of examination of these affections. JELLIFFE.

A CHANGE IN THE EDITORSHIP OF THE NEW YORK POLYCLINIC.

The January number of the *New York Polyclinic* shows a decided change over previous issues. The new Managing Editor, Dr. James Hawley Burtenshaw, assumes his duties with this number and exhibits his spirit and enterprise by changing the type, eliminating the double-leaded spacing, and by increasing the amount of reading matter in the journal.

With this number he institutes as a regular feature of the journal a monthly report of the number of patients admitted, and of operations performed at the Polyclinic Hospital; and he promises further advances and improvements which will greatly enhance the value of the journal.

We congratulate the *New York Polyclinic* upon securing such an able Managing Editor as Dr. Burtenshaw promises to be; and we congratulate Dr. Burtenshaw himself upon the excellency of his work, and wish him and the journal the very best of success. GAZZAM.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

AUTO-MIMESIS AS A FACTOR IN ETIOLOGY
AND THERAPY.¹

By SMITH BAKER, M. D.,
of Utica.

THE facility with which certain personalities absorb the different characteristics of environment, and reproduce them more or less accurately, as features of themselves, has been noted by many. At the present time the meaning and scope of all such natural mimicry is being investigated with increasing interest and success.

No one can read the recent work of Professor Baldwin² without being impressed by his conclusion, that imitation plays a very important, and perhaps unsuspected part, in the evolution of the individual mind, especially during the earlier years; and that, taken in connection with the initiating suggestion on the one hand, and the resulting ideational and motor reactions on the other, we are permitted to infer in a general way, that it is one of the principal processes by which the building up of mental adaptability and strength, is all along secured. At any rate, as early as the third month after birth certain "biological mimics" become apparent, and it is noted from this point on, that the rise of mimetic activity seems to be *pari passu*

¹ Abstracted and read at the twenty-first Annual Meeting of the American Neurological Society, June, 1895.

² "Mental Development in the Child and Race." 1895.

with the other features of the physical and mental development. Along, with the simpler processes,—those that are nutritive, reflex, automatic and sensori-motor, and those which denote some sort of hesitant-attentive (deliberative) reactions,—the process of copying after environmental features (i. e., imitation in its usual sense), grows in importance, and serves simultaneously with all the others as the basis of memories (ideas), and so becomes eventually usable in the more truly psycho-motor life of the individual.

Primarily important to the process of imitation is suggestion, which serves always as the timely initiative, and likewise to release the energy requisite for cognizing the copy-pattern to be reproduced, and for carrying out the mimetic activity itself. Suggestions as such, are classified by Professor Baldwin as follows: (a) "physiological;" (b) "sensori motor;" (c) "personality," including sleep, food and clothing and personal factors purely speaking; (d) "deliberative;" (e) "ideo-motor," or more definitely "imitative;" (f) "sub-conscious adult suggestion," as in tune, dreams, normal auto-suggestion, and whatever is owing to exalted sensibility; (g) "inhibitory," as from pain, control, contrariness, bashfulness; and (h) "hypnotic suggestion" proper.

Suggestion, then, as the energy releasing initiative, the "*Auslösung*," or "trigger action of Pfeffer"³ and imitation, as the fixating and appropriating process—these two may be looked upon probably, as constituting the source and developmental process of a very large part of the mental life of every one. And, furthermore, if we may be inspired to belief, by Professor Royce⁴ we may regard imitation as including very important steps by which the raw material of everyday experience becomes converted into elements, not only of thought, but finally of character; while it is in a way exactly similar that the larger social consciousness and its sweeping, determining waves, *may* be most easily and accurately accounted for. However true this may prove to be eventually, we must note that the labors of Professors Baldwin and Royce, following upon the hints of Tarde,⁵ have seemed to open up a point of view, and

³ "Address before the Society of German Naturalists and Physicists."—*Nature*, April 19, 1894.

⁴ "The Imitative Functions and Their Place in Human Nature."—*Century Magazine*, Vol. 48, p. 137.

⁵ "*Revue Philosophique*," Vol. 18, 1884. Also, "*Ses Sois de l'Imitation*."

likewise to have indicated a line of investigation, which promises much, not only to psychology, but to psychiatry and neurology as well.

As considered heretofore, imitation has been taken to stand almost exclusively for the acquisition and reproduction in the experience of one individual, of a sufficiently striking copy-presentation in the life of some one else, or, in the characteristic and forceful appearance of some outside object. Primarily this is the case. We all naturally imitate environmental characteristics, and in this way actually seem to get our first notions of our own natures and their various possibilities, and also of a very large part of the world itself, its people and their interests. This kind of imitation, which we may designate as *primary*, is in fact so universal and so important, that it is rightly considered worthy of much study, especially of late.

But it is not this, the primary process of imitation, that needs so much to be studied at present, as that which may be designated as derivative or *secondary*, and which as I conceive, it seems to consist definitely in the mimicry of a subjective copy, *i. e.*, mood, or pain, or tension, or psychosis of any kind, incidentally set up in the personality, and then followed persistently for a time, to the exclusion of the determining influence of other impressions, or conceptions. Such an initiating copy-suggestion may come from without through the senses, or from within through recollection, imagination and the like. But the process subsequently set up, is in either case, essentially the same; viz., that of a perpetuating mimicry, in which the subjective copy is interpreted and reproduced more or less accurately, and vivified and intensified in a more or less progressive series until the initiating impulse is spent, or until another and diverting, or counter-acting one, supervenes.

That such an idea of automatically following a copy, once effectually set in one's own self, may be applied not only to the elucidation of the normal psychical experience, but to many phases of etiology and therapeutics seems fairly inferable, if not entirely demonstrable. At any rate when we trace a more or less persistent symptom, say, to its ultimate source, we come either upon the organic condition, which may supposably stand as its permanent cause, or else we are driven to affirm an alteration in functional adjustments and

activities, adequate to stand in a like relation. But it is notorious, that no matter how purely physical the underlying cause is found to be, there is practically no safely assumed relationship between the cause as thus ascertained, and the neuro-psychical commotions consecutively experienced. As Dr. Goodhart has said:⁶ "Here is one of the mysteries of pain—there is no standard by which to gauge it. In the abstract, it is a part of the common lot of man, but there is nothing that is less common between you and me. What is agony to you may be a mere flea bite to me, and it is obvious, I think, that in the higher refinements, it is a portion of a development that marches with the march of the keen, nervous susceptibilities of modern life." It is in this development of nervous susceptibility, where it seems to me, may be found the conditions favorable to the persistent automimetic processes. At any rate, the way in which some very sensitive people hug closely their ills only to make them worse, is rather suggestive, to say the least, that in addition to the natural or sometime-before-acquired hyper-sensitiveness, there must be admitted a helping ally in the processes involved; and none other, as yet, seems more probable than that of persistent self imitation.

Something like this is needed when we come to consider the various exhaustive muscular, emotional and ideational tensions which are so important as causes of, and which so hamper recovery from neurasthenia, hysteria, hypochondria and all the allied perversions and other limitations and determinations which so characterize the many neuro psychopathies, both mild and grave. Such cases readily take on certain habit-attitudes or mal-functionings or moods, or ideas, and set them up as copies, and then go on indefinitely mimicking and interpreting them, even though the whole process proves in the end to be vicious and even destructive. Just how an experience, once or twice realized, comes to be the first step in the acquisition of a habit, and so ultimately of a character, is a matter of much concern in this connection; evidently important health deviations are bound up in this. In order that such results should accrue, however, it is probable that certain dominant inhibitions must first be loosened. The new set of stimuli, whether from within or from without, necessarily breaks in upon the stability

⁶ "The London Lancet," Jan. 16, 1892.

of things, and makes it necessary, in consequence, that there be a new attempt at accommodation to the resulting new order, the bonds of previous adjustments giving way invariably before needed changes can come about. But abatement of inhibition is not all. The effort implied in accommodation or fresh adjustment, probably always includes an actual energizing in the direction determined by the fresh stimulus. Such energizing, associated with the new experience itself, determines in turn, repeated advancements along the very same line, until all there is in it of interest, corporeally, ideationally, or motorially, or all these together, is realized and incorporated in the new phase of personality. Of course, the factor called interest, may be considered as conscious or unconscious, as physiological or psychological, or as including all sorts of interpretations so far as the well or ill-being of the organism is concerned; and these, as well as the matters interpreted, may just as likely prove to be detrimental in certain cases as otherwise; while the final outcome may just as readily prove to be a habitual interference, distress, exhaustion, destruction, etc., as the reverse.

A simple illustration of a somewhat frequent order was the case of a young woman, neurasthenic, but improving, who complained that she could not lie on her back because of such a "drawing," as she called it, in the abdomen; which always lasted until relieved by turning to either side. Excluding by examination other sources of trouble, the fact of persistent muscular tension confined clearly to the abdominal walls was elicited. It seems that some weeks before, while playing with a rather heavy baby, she had felt a slight hurt but had practically forgotten it, and denied having ever consciously associated it with the present difficulty. Evidently, here had been going on for some time, a process of sub-conscious tensional mimicry, initiated by a sudden over-excitation of muscles, and going on so surely, that although no discomfort had been felt save when on the back, the tension was found to persist more or less at all times and in every position. Applying this to the habitual attitudes of so many people, which are seldom or never "let go," and are withal so surely a source of wear and tear, we have perhaps not only a provisional explanation of their source and development, but also a hint as to curative measures for certain important disease conditions and results.

Scowling foreheads, clenched fists, close-shut jaws, fixed chests and diaphragms, etc., are some of the notorious reasons why some cases persist so unexpectedly, and do not eventually realize the best-grounded therapeutical expectations.

Take again the moods, the mental tones and colorings which dominate people. I have been much interested in the evolution of various emotional tensions and relaxations, as they recur in the healthy ordinary daily life. The first thing noticeable is the initiatory suggestion, a pique or disaffection, denial, demand, depreciation or any incidental state of the organism or its functions. Then, whether this be repeated or not, and oftentimes it need not be, there rapidly develops in well-defined pulsations the most truly tidal wave of physical and psychical commotion. Watching the process in one's own self, interest centers first upon the various tensions and the vague feelings in connection with these, and then the rise of all that contributes progressively to the focussing of the self upon a definite state of self-like feeling and associated action. Soon following comes the recognition that all this is not new, and that more or less consciously we are actually endeavoring to realize over again some one or more previous experiences, and thus to make ourselves tally with the self of a former occasion. This self of a former occasion becomes at once the type to which we not only refer everything, but the copy to which we would conform. But each new experience involves new elements, derived both from dynamogenetic and ontogenetic results within, and from environmental contact as well. In this way each emotional wave is bound to have not only a more or less distinctive content and tone of its own, but is also able to conform in a general way to a copy sometime previously set.

Whether the emotional experiences as such, cause the simultaneous or subsequent states of tension, tears, and attitudes,—the usual theory, and maintained by Wundt, Sully, and the world generally; or, whether these come first, and being subsequently felt, constitute all there is of a real emotion,—the so called "peripheral" theory, enounced by Lange and James, and sustained by Baldwin, Dewey and others, does not seem as yet to be conclusively settled.⁷ At any rate, Ziehen says: "All

⁷ See various articles in the current volumes of the "*Psychological Review*" and the "*Physiological Review*."

these investigations still leave a great deal to be desired in the way of exactness and completeness." But all are agreed that the connection between the subjective commotion and the objective stimulus is so intimate that once any sort of association complex becomes organized, it assumes an important function in the determination of the history of the individual life. That this function may be very largely mimetic was recognized by Mitchell,⁷ who in his account found imitation of diseased conditions to be owing to "physical peculiarities," "lowered health," "nervous temperament," "general nervousness," "hysteria," "mental influence," "sympathy," "automatism," and the like. In either or all of these conditions, he found this function to be rapidly developed, and likely to be persistent as well. If this be so in reference to the "social" mimicry, how much greater the possibilities of "self" mimicry, providing such a process be ever a fact. In this, however, there is not much room for serious doubt.

The tendency of every mimitic process is to perpetuate itself through what has been called by Baldwin a "motor excess," and this in obedience to the law which assures a "proximate reinstatement of the original stimulation by a discharge of the energies of the organism, concentrated as far as may be for the excessive stimulation of the organs most fitted by former habit, to get the stimulation again." The workings of this law need not be confined to "social" imitation at all. It just as truly may be seen to govern auto-mimesis and if my observations have been correct, it does so apply. In the development of an emotional state no one is ever satisfied naturally until a full reproduction of a former self-copy has been accomplished. Note ordinary laughing or weeping, loving or hating, depression or exaltation of any kind, or any experience egoistic, or altruistic, or what not. Unless the influence of another copy be experienced, the original one tends to determine the progress of its own imitative-series until its inherent momentum is spent. Moreover, it likes the play, as it were, of its own depths, and rather takes pride in the display of its varied surface splashings and foamings. Nowhere does this appear more clearly than in the gratification of any one of the natural appetites—nutritional, prehensional, sexual, etc. The copy once set, all else must give way until realization is accomplished,

⁷S. Weir Mitchell, M. D., "*Nervous Diseases*," chapters 3 and 4.

or another more attractive one determines a like devotion, or until reason assumes needed sway. When observed in connection with neurasthenia, hysteria, hypochondria, and the like, the extent and potency of automimesis is appalling. In fact, at certain stages of these affections, self-mimicry is the one thing to be regarded not only in etiology, but in the bringing about of remedial results.

When we come to consider ideas clearly as such in their relation to morbid results, we at once enter the sphere of conscious imitation, and are upon more familiar ground. That an idea made up of the "function of the contents," as psychologists say, of one or more memories, should possess the set-copy characteristic preeminently, seems plain enough. In this case, we may assume at once that imitation plays an important part not only primarily of others, but secondarily of self also. And when we find in any given instance, that the copy ideas have become fixed and insistent, we may, provisionally at least, assume further that to begin with, there was a mental picture, either vivid at first or made to be so through development, stage by stage, which became opportunely set as a copy, and there has since served for imitation perhaps both conscious and unconscious, for a longer or shorter period. Normally, such an imitation-series ends as soon as other mental pictures become strong enough to furnish counter influencing copies and to secure imitation in turn. But abnormally, no primary mental picture ordinarily arising to view, seems influential enough to break the bonds of copy, or to vary the direction of progress. Over and over again is the even most detrimental secondary copy reproduced, until either permanent fixation results, or some masterful influence interferes.

Recently a man consulted me for recurring attacks of mental pain and depression, in whom there was operative a form of most common morbid fear, viz., that of the return of a severe illness experienced several years ago. It seems that at that time he suffered from some low form of malarial poisoning, which left a vivid impression of chill and headache behind, and which was accounted for chiefly by much discussion of the water he had been in the habit of drinking. Ever since then, whenever threatened with illness of any kind, he has had to combat the particularly obtrusive notion that the slightest taste of our city-supply water is liable, and

actually does cause an immediate chill; but one queerly enough involving the wrists only. How the association of chill with the wrist-areas came about originally, is now lost; that of chill with drinking city water is obvious. But why the anticipation and the fact of chill have been so repeatedly experienced in connection with water drinking, is explicable fully at any rate, only by supposing that it is an element of a suggesto-imitation series, not yet superceded by one interesting and influential enough to the neurasthenic organism to break the insistent bonds. Persistent imitation acting through an unusually long and wide and complex range of associations, and forcing its results to the front, upon the slightest favoring occasion, illustrates the process and accounts largely for the facts.

The far-reaching outcome of a single marked shock, which is but another name for a most impressive suggestion upon a certain class of constitutions, is not entirely explained without the help of auto-mimesis. Thus, a woman aged forty years, had two years since some sort of illness, for which belladonna was prescribed. The resulting pupillary dilatation and interference with vision, together with the dry throat, etc., gave her a rather vivid impression of poisoning, coupled with the conviction that in consequence she would soon be totally blind. Recently I saw her for the first time, and discovered that she still had not only her original notions and fears, but had likewise rather continuously felt, that only by the most watchful and determined effort, had she been able to prevent, as she represented it, the "blood from flowing down upon her eyes and closing them permanently." Examination revealed no ocular trouble whatever, save the ideational interference mentioned,—even the upper lids, being readily lifted whenever attention was diverted from them. But the idea of "blood flowing down upon them," threatening obliteration of function, and material destruction, had persistently recurred more and more frequently in spite of circumstances, of themselves more favoringly suggestive than otherwise. She seemed at first to have gotten a very vivid impression of supposed danger, which may be resolved into three elements: loss of vision from paresis of the ciliary muscle; destruction of the optic nerve from the unusual flush of light; and paralysis of the lids from the automatic closure to keep the excessive light out. Each one of these elements, not being

convincingly explained away at the time, became conspicuously set in consciousness as a copy for the reproductive development of a set of imitative processes, lasting on for two years, growing in vividness, becoming more and more persistent and fixed, and finally resulting in insistently permanent ideas of danger and loss, as yet beyond breaking up. Of course, during this time, there probably happened many things, to resuggest and otherwise contribute to the final result. But this scarcely invalidates the conclusion that imitation of the auto-mimetic order, played a most important part; for notably, as Professor Baldwin seems to have proven, one of the characteristics of the imitative process is a kind of selective appropriation whereby somewhat of everything within its reach is made to conduce satisfactorily as it were, to its own activity and final outcome. As he definitely puts it, "persistent imitation means, as seen in the child at any rate, the effort by repetition to improve his imitation," which is but another way of stating that in this, as in other vital processes, there is ever active a purpose, to the ultimate realization of which everything conservatively, yet constructively, tends. As observed in the foregoing case, as well as in all disease relationships, it appears to always involve not only imitation of what has been, the copy already set, but also the stirring up of original and other stimuli, and the association of these with desired ideas helpful in its further propagation; and eventually the binding all fast in an association complex, which in turn becomes the copy for whatever follows.

I. Take the ordinary case of "railway spine," or traumatic neurasthenia. Shock, more or less actual pain, confinement, sympathy, much discussion of causes and conditions and prospects—all these are naturally enough and usually quickly enough recovered from. But here, the added element of fear coupled with the other more-vicious-still elements of notoriety, and of anticipated remuneration, determine and set a copy ideationally vivid and interesting enough to in turn determine a series of imitations, which theoretically are usually supposed to be seriously distressing, and hence to be obviated in every way possible; and yet which, in spite of much influential inhibition, usually go on until money realization or useless contest, becomes a counter-acting check, and the inauguration of a new series in some other direction supervenes. And so may

we look upon the origin and growth of the abnormalities manifest in the insatiate sensationalists, and emotionalists, the aboulias and anorexias, and in the various idlers and triflers and folly-mongers that are found everywhere—all these being greatly influenced from first to last, by the ideational copy, to the imitation of which their lives are most sedulously devoted. All these actually like best to follow even a vicious copy, rather than to arouse themselves, supposing that they could, to an appreciation and pursuit of another and better course. And as for help, there is very little for them, until skill and patience succeed in breaking through the tangled meshes of imitation embroideries in which they are involved, and in fixing attention upon a better model and thus determining eventually, other activities healthward. Such, I take it, is the curative process involved in the plan of Dr. Russell Sturgis,⁹ who uses "hypnotism to the first degree." But I am equally sure, that recognizing appreciatively the part imitation, added to suggestion, plays in the history of these cases, we frequently need not go to the extent of using hypnotism in their cure at all (unless we choose to call all determining impressions the results of a kind of semi-hypnotic experience.) A plan that I have used successfully is so simple when stated in outline, that there seems to be nothing to it, although it certainly is as old as medical practice itself. And yet if this discussion has a basis of fact, it is really scientific. It consists in lodging, at the opportune moment, during the ordinary inquiries and examinations, the right kind of suggestive idea in the patient's mind; and then at definite intervals, repeating this in such a way that a sort of cumulative effect is from time to time secured. Coupled with this, is prescribed a carefully marked-out series of exercises as purely intellectual as possible, which are calculated to enforce impressive mimicry of the suggestional copy already set. Telling a patient with hysterical anorexia, for instance, that he must eat, avails nothing in the great majority of cases, neither do medicines of any sort. Dropping a hint in the right place, that such an one may develop the most enjoyable appetite if only he once adopt the right method, and so add to the usual pleasures of life, and by proper repetition of this, begetting in the mind the copy-idea that really a good appetite is as easy to

⁹ Russell Sturgis, M.D., "The Use of Hypnotism to the First Degree," *New York Medical Record*. Feb. 17, 1894.

have and much more desirable than a poor one, and finally, in turn helping to the realization of this in all unobtrusive ways may seem to be too transcendental, old-fashioned in fact, and withal bothersome to be noticed. But in all this class of cases the main thing is, to get health-tendencies and habits, and consequently character established in the place of the vicious ones. This, however, is not secured except with the consent, as it were, of the organic processes involved; and interest developed through suggestion and imitation rather than force, secures this most frequently. On the other hand, in a certain number of cases, in order to secure the needed organic and functional consent, the exact reverse is true.¹⁰ Everything must be done with all the force, even brute force, if you will, possible; but here also, the same principle of getting a copy established and securing its imitation, holds none the less true. And likewise the same idea of cumulative influence obtains. What is really needed is the condition of things described by Prof. Mary Whiton Calkins at the conclusion of her series of experiments on Harvard and Wellesley students. Says she: "All the experiments together suggest, however, the hopeful probability that vivid or multiplied lines of association may be established in the individual consciousness, firm enough to withstand the force of the recent and accidental, and powerful enough to counteract the passing influences of environment."¹¹ Practically, many of these cases will never withstand "the force of the recent and accidental," until they have been educated up to a point of permanent volitional resistance and self-direction, where the recent and accidental and the passing can not seriously disturb the even tenor of health's way. Until this is accomplished attempts at material therapy are for the most part useless; for the dominant tendencies are all downward toward disease.

Miss —, brought from a distance on a bed, was said to have been bedridden for a number of years (12), and to have been operated on for a number of painful conditions. The usual inquiries elicited nothing in particular, save the patient's own deep anxiety about herself, centered somewhat indefinitely upon the pelvic region. Later, I learned that at different times her

¹⁰ Edward Cowles, M D., in his article on "The Mechanism of Insanity," in *Amer. Jour. of Insanity*, Vol. 43.

¹¹ "*Psychological Review*," Sept. 1, 1894.

urethra had been dilated, her uterus "operated on" under ether, and that for years she had worn in succession a number of pessaries without appreciable gain. Further examinations served simply to reveal the commonplace result, that to whatever area I directed my own attention, upon that one hers became rapidly fixed. Altogether there was no physical condition discoverable to account for her long living in bed.

She had a healthy rather prepossessing face, was tastefully robed, and her head and hand movements were evidently much refined from constant care and practice; I learned subsequently, that this was in striking contrast with the appointments of her home, where she had so long lain as an object of most devoted care. This was said to be humble and prosey, with humble prose inmates only. I learned besides, that the alleged cause of her illness originally, was being thrown from a buggy while riding with her accepted lover, who afterwards had jilted her; that at first she did not suffer much, etc., etc.; but that after a few weeks "severe" symptoms somewhat erratically developed and had proven incurable thus far.

Of course, this is a very familiar portrait, and its introduction here is only for the purpose of bringing out clearly phases of doctrine concerning etiology and treatment already described. That this woman found the attentions of family, friends and neighbors and physicians and withal her sweetheart, so interesting, during the first days of supposed suffering, that the emotional and ideational picture resulting therefrom had become easily set as a to-be-far-reproduced copy, there is little doubt. That their subsequent attentions served also to re-suggest, and her own imitative nature to immensely favor, such a detrimentally imitative series, is equally plain, while the element that was of sufficient influence to determine such an indefinite prolongation was undoubtedly the vitiated will power and perverted sensibility so common to these cases. Says Prof. Royce, "Imitation is definable as an act that interprets an uncontrollable perceptive series, by setting over against it a series of experiences that appear to be similar to it in content, but to be also in contrast with it by virtue of their controllableness."¹² That these cases are characterized by uncontrollableness, is always evident. Dissociation and perversion of ideas, both

¹² *Psychological Review*, May, 1895.

in respect to themselves and in respect to their relation to conative processes, are frequently very complete. And in this assurance of personal identity is involved fundamentally. Besides, they have constantly the nervous erythism of pampered subjects. They now shrink from suffering, they reach out for sympathy, they rely on some one else, they watch themselves, they practice their impositions, subjective and objective, they distort their relations with the world, all and everything, because of an almost religious adherence to their idol-self-copy, and owing to the detrimental influence of which, they have neither the ability to perceive accurately nor to will competently.

Physiological psychology teaches this: will-power itself is dependent on ideas, their association, clearness, grouping and emotional tone. It is fast advancing to the position that usable, persistent will-power, is owing to habits originating in suggestion, and practiced and developed in an imitation series. Such cases as the one referred to are abnormally suggestible in that they have reverted to a state of infantile plasticity and that their psychical reactions are perverted accordingly. They have lost themselves in the miseries of the hour. They do not see correctly, nor think accurately, nor feel promisingly, nor act for their best interests. Therapeutically, they must be made to change all this, through the medium chiefly of instruction calculated to favor aggressive intellectualization as a pre-requisite to well being and right conduct. All other cures, those evolved emotionally in particular, are at best temporary.

But, of course, the puzzle is to determine just what needs to be done and how to do it in any particular case. Unusually not only the waking thoughts of these people, and their ordinary conduct, but their reveries and their dreams and their varied automatic activities, must be taken into account. And certainly not only their imagined but their real disappointments and distresses also. These people have had their usual self-identity superseded by a new one, one that has been established by a prolonged imitation of characteristics more or less foreign, and sometimes taken from many a source. The old associations have been broken up; they appear to themselves isolated and unique. And above all, they are self-indulgent to such an extreme degree, that the chief thing to be done usually is to supersede their self-sufficient egoism by a sense of care-

taking and responsibility, while at the same time they are taught how to annihilate the striking self-interest which characterizes the copy-content and holds them with such fascinating interest. A hard but stimulating course in mathematics, or science, or metaphysics is often needed by many of these cases before the more commonplace remedies are prescribed.

A recent writer, Koch,¹³ sums up his treatment of psychopathic depreciations in advising against ill marriages, overwork and pernicious thoughts, and in cultivating body strength, the will, and especially the ability to control self. The cultivation of true volitional ability on the one hand, and even of body strength on the other, is best secured it seems to me, by first making such an impression that it amounts to a self-determining model for subsequent auto-mimicry. Says Regis,¹⁴ "Therapeutic suggestion in the waking state is the most useful and efficacious agency in the treatment. . . . In cases of melancholy without delusions, fixed ideas, alcoholism and the milder forms of stupor, repeated methodical suggestion in the waking state, employed to combat the morbid phenomena, may be very useful." Again he enumerates, "dynamic disorders, or those without recognized anatomical lesions of the nervous system, chiefly neuralgias, hystero-epileptic attacks, paralyses, contractures, hysterical anæsthesias and vomiting, rebellious cephalalgias chorea, etc.," as being some of the conditions in which such a course is most useful; but he says nothing of the *modus operandi* of the suggestional remedy. If, however, we have given the suggestion that initiates and then have repeated this methodically, and likewise given it the advantage of systematic support, what else have we done than actually set going a series of mimeries which in the best results, become so well established that the process persists automatically until no longer useful, or is superceded by something else. At any rate, in the case mentioned above, the method of remedy seems to illustrate this very fact. After assuring myself of the ground, I proceeded to quietly but distinctly reveal to her in detail, the deteriorating course of her inner life, and to show her how she had selfishly indulged herself in

¹³ Koch : Quoted by Jules Morel, M. D. Report International Congress of Charities, 1892.

¹⁴ Regis : "Practical Manual of Mental Medicine." Trans. by Bannister, 1894.

every indolently imitative way, and, in order to add the emotional *quale*, how she had worn out the life of the old mother, and impoverished the home. I then set the idea of good health before her, and advised her to go home, gradually resume household cares, take up her social duties, in fact determine herself to undergo a general resurrection, and stop indulging herself either in feeling, or thought, or idleness. Additionally a developmental course of simple but sound readings, and other novelties was lined out, in which she had to will actual conduct in the place of simply following her vicious inclinations. From time to time, I had the pleasure of reading her own variable reports, on the whole of improvement, and of learning thereafter, that she had been a well woman. Evidently the imitable copy set, and the training entered upon, resulted eventually in a renewal of self, a self that in turn has been the health model of all subsequent life.¹⁵

¹⁵ Since the foregoing was written, Dr. James J. Putnam's "*Remarks on the Psychical Treatment of Neurasthenics*" before the Boston Society for Medical Improvement, March 4, 1895, has been published. (*Boston Medical and Surgical Journal*, May 23, 1895.) The reading of Dr. Putnam's paper arouses renewed interest in the attempt to elucidate the etiology and therapy of this class of diseases.

REPORT OF TWO CASES OF TUMOR OF THE SPINAL CORD, UNACCOMPANIED WITH SEVERE PAIN.¹

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WHILE pain in spinal tumors is generally regarded as a prominent and almost unfailing symptom, in a considerable number of the reported cases, no mention is made of its existence. Clinical histories which are conspicuous by such omissions cannot form data from which might be drawn conclusions as to the proportion of painful tumors to those which run their course without severe pain. However, the fact that in many cases no mention is made of so prominent a symptom, suggests a probability that in some of these instances it was not mentioned because, to a marked degree at least, it did not exist. The total number of reported spinal tumors is not large. The writer has been able to find only 130 with at all satisfactory descriptions; and the accounts of the majority of them were published before as close an attention was devoted to symptoms of disease of the nervous system as they now receive.

While these generalities prove nothing, they may lessen any surprise which may be occasioned by the occurrence of spinal tumors, which are absolutely or comparatively painless.

From an operative point of view, if from no other, it is desirable to determine the frequency and significance of pain in new growths of the spinal cord and its membranes; if by its presence or absence, or by its character, fairly definite conclusions could be drawn not only as to the nature and vertical position, but as well to the situation of the tumor in respect to the circumference of the cord, the future of surgery in the treatment of such cases would be brighter than it is at present.

The cases which follow will not, unfortunately, form sufficient evidence to justify any general and positive

¹ Read before the New York Neurological Society, January 7, 1896.

conclusions based upon the presence or absence of pain. They are presented, therefore, merely as a contribution to a subject which merits careful observation.

CASE I.—Female, 65 years. Family and personal history negative. Had always been well until last June, when she was suddenly taken with chill, headache, vomiting, and rise of temperature. Pulse rapid and feeble. Dullness over both lungs behind, with bronchial breathing on the right side. Complains of general pains over whole body. Knee-jerks not obtained; albumen in urine; died sixteen days after being taken ill. The autopsy revealed a chronic congestion and œdema of both lungs, a soft and dilated left ventricle of the heart and a marked atrophic nephritis. On the dorsal internal surface of the dura mater, between the seventh and eighth posterior dorsal nerve roots, was a tumor three-quarters of an inch long, one-eighth of an inch wide and elevated about one-tenth of an inch above the surface of the membrane.

The tumor was directly opposite the posterior longitudinal fissure, and its long axis corresponded to that of the canal.

The mass was extremely hard, finely lobulated and gritty to the touch. Microscopical examination showed a connective tissue capsule adherent to the dura mater. The substance of the mass was divided by many fibrous trabeculae, in the meshes of which were embedded nests of cells which had undergone an almost complete calcareous degeneration. The specimen presented, therefore, the characteristics of a psammoma.

It had never caused any symptoms, the death of the patient being entirely due to one of the attacks of pulmonary œdema to which the victims of Bright's disease are liable. The finding of the tumor was purely accidental, as no suspicion of its existence had been entertained.

CASE II.—Female, 29 years, married. The patient had had one healthy child and no miscarriages. Syphilis emphatically denied. Before coming to the Alms House she had been operated upon several times. In 1889 laparotomy was performed and a small tumor was removed. Nature of this tumor unknown. Ten months later a second laparotomy was done and a second tumor removed. In January, 1893, a tumor was removed from third rib and a part of the rib was excised. It was impossible to get a definite history as to the nature of

these tumors and the reasons for their removal. The symptoms referable to the nervous system covered a considerable period of time and manifested themselves in a peculiar series of attacks.

The first attack commenced in 1889, six years before her death, when she was in Bellevue Hospital for her first laparotomy. The symptoms at that time, which lasted ten months, were paralysis and numbness of all four extremities. At the expiration of this period she states that the paralysis completely disappeared. She then was able to walk and use her hands, until July, 1893, when she had an attack of paralysis similar to the first. At this time she was admitted to the hospital of the Alms House and presented paralysis and numbness of arms and legs, together with cystitis. The paralyzed muscles reacted to faradism. The paralysis was so marked that patient could not feed herself and could move her legs but little. She was treated with strychnine and electricity and recovered sufficiently to walk out of the hospital. She was re-admitted in the early part of 1895 with a new attack of paralysis, which had come on suddenly.

My examination showed her to be of small frame, considerably emaciated, with a bed-sore over the right buttock. Her mentality was excellent and she complained of no pain. Both pupils reacted to light and during accommodation. The left pupil was considerably smaller than the right, and the left palpebral fissure was narrowed. Right side of face was pale as compared to the left, which was flushed and hot. Other than these, no abnormalities were observed about the head and face. There was a well-marked extensor paralysis, with contractures of the flexors, of all four extremities. As she lay in bed her appearance was that of a person with multiple neuritis. Coarser movements with the hands she could make, but there remained very slight power in the legs, and she was practically bed-ridden. Although the affected muscles reacted slightly to faradism, there was a moderate amount of atrophy. The knee jerks were a little more active than normal, and both a wrist and elbow-jerk could be elicited. Sensation, as far as could be determined, was everywhere normal, though she said that there was a bluntness of tactile sensibility most pronounced in the fingers. Muscular sense was unimpaired. There was a marked cystitis with occasional incontinence. The urine gave evi-

dences of nephritis. The actual presence or history of pain was carefully inquired into. The patient stated positively that she had never been subject to any severe pains. At the time of my examination, a few days before her death, she certainly had no pain. The patient was of an extremely nervous temperament and complained constantly of indefinite pains and discomfort; but characteristic root pains she positively denied, although she sometimes complained of dull pain in the neck. This subject of pain was carefully inquired into, in order to establish the diagnosis between spinal tumor and cervical pachymeningitis. She could move her head freely in all directions; such movements, whether done voluntarily or by the examiner, were performed without the slightest discomfort. Neither was there any tenderness over the vertebral spines.

In spite of the absence of characteristic pain, the physical examination of the patient, together with the history she told, embracing as it did so many "tumors" in different parts of the body, made the diagnosis of a tumor, probably a gumma, of the cervical enlargement inevitable; the absence of anæsthesia made its location a difficult matter. The extreme exhaustion of the patient rendered operative procedure impracticable.

The patient died in July, 1895, during an attack characterized by congestion and œdema of the lungs and suppression of the urine, and I performed the autopsy eighteen hours after death. There were extensive adhesions of the anterior surface of the pericardium to the chest wall; the left lung had apical adhesions and an old cavity. The liver was enlarged without any increase of its connective tissue, and the large spleen was adherent to the liver. The bladder showed a marked chronic cystitis, the ureters were dilated and the kidneys showed a pyelo-nephritis, containing in their cavities large calcareous concretions. The capsules of the kidneys were adherent, the kidney surfaces rough, and their cortices much diminished in size. The brain, with the exception of atheroma of the arteries, was apparently normal.

On exposing the dorsal surface of the cervical portion of the spinal cord, it was seen to be abnormally prominent. Upon removing the cord, a tumor was found on the ventral portion and external surface of the dura, but slightly adherent to the loose fat of the spinal canal. (Fig. 1). The tumor consisted of an irregularly quadri-

lateral shaped mass, limited almost exclusively to the ventral half of the membrane. It included the first, second, third and fourth anterior cervical nerve roots on the right side, first, second and third on the left. Thus it descended lower on the right side than on the left. The tumor mass was soft, of an irregular outline, its surface presenting a nodular cauliflower-like appearance, raised one-eighth of an inch above the surface of the dura. The dura itself was but slightly thickened and its internal surface was smooth and not adherent. The cord was pressed upon anteriorly; and posteriorly it bulged out so that the posterior nerve roots were considerably separated.

The spinal cord, with the dura mater and the tumor attached, were prepared in the usual way for microscopic

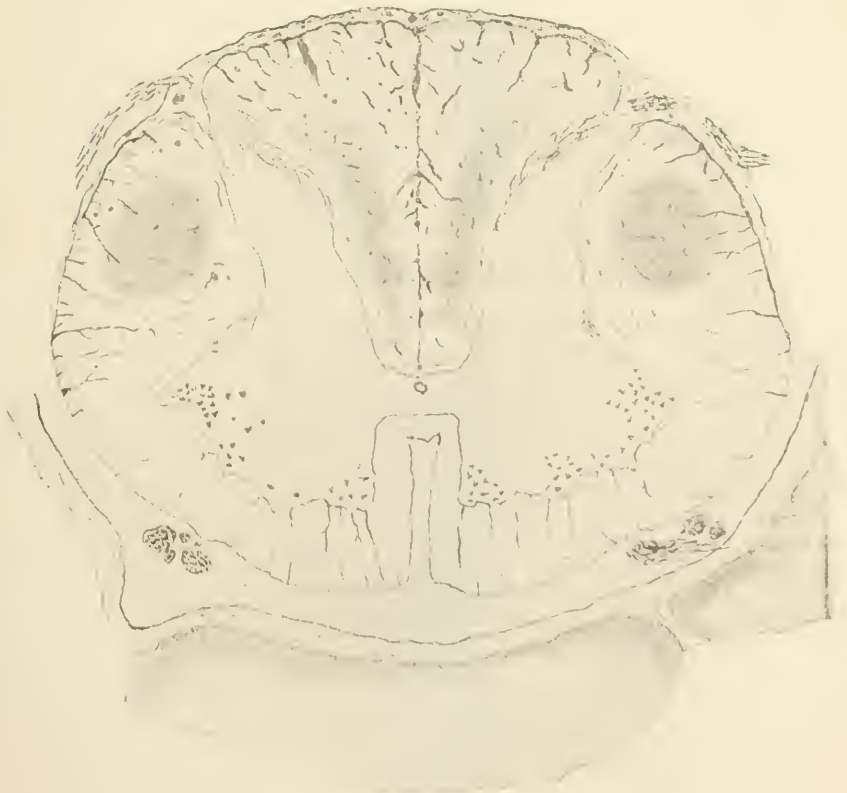


FIG. 1.

examination. Sections were made of the tumor and spinal cord at various levels and stained by the Van Gieson picro-acid fuchsin, Weigert and Eosin-hæmotoxylin methods. The tumor (Fig. 2) is seen to spring directly from the external surface of the dura mater, and is limited to the ventral half of its circumference. The dura itself is not much thickened; some of its vessels are considerably dilated. The tumor consists of a very narrow outer zone of dense fibrous tissue, binding it to the dura, inside of which is a zone of closely packed small spheroidal, polyhedral and fusiform cells. The entire remainder of the tumor consists of a disintegrating mass of tissue in a condition of cheesy degeneration. On the outer side the tumor capsule merges with the spinal fat and was largely torn away at the time of removal from the spinal canal. The picture is a typical one of a gumma with excessive degeneration, and since no tubercle bacilli were found, the syphilitic nature of the process is unquestionable. The effects of the gumma upon the spinal cord are extremely interesting, agreeing as they do with the symptoms to which they gave rise. Above the tumor there is a moderate ascending degeneration which could not be traced beyond the nucleus gracilis; and below, the crossed pyramidal tracts are not markedly degenerated. The cord itself, opposite the tumor, is but slightly compressed. The central canal is patent in most of the sections, and the anterior horns are normal as regards their shape and constituent elements. The nerve roots were not examined separately. As they appear in section, none present any marked increase of interstitial tissue, with the possible exception of one section, and none were found which presented distinct evidences of degeneration. There is a general meningo-myelitis of all four segments pressed upon; in the second and third segments, this is more or less general, though more marked on the dorsal surface. In the fourth segment (Fig. 2), however, the seat of this process is almost entirely limited to the dorsal half of the cord. Here the pia mater is much thickened and sends processes far into the substance of the cord, causing an atrophy of the marginal nerve fibres. The posterior median septum and the inter-funicular septa are much thickened, and contain new vessels with thickened walls. The branches of the posterior median septum are numerous and well marked. There are large areas of new connective tissue and a considerable decrease in the number



FIG. 2.

of nerve fibres in the crossed pyramidal tracts and in the anterior and central parts of Burdach's columns. These parts contain many new blood-vessels with thickened walls, and tortuous courses. Thus the areas of connective tissue in all of these degenerated columns follow and surround the blood-vessels in their course and distribution, which fact lends support to a theory of a vascular origin of the process.

The pressure of the soft tumor in front was apparently not sufficient to cause as extensive changes in the pia mater and nerve elements which it immediately covered as in those further removed from it. It appears to have pushed the cord against the posterior arches of the vertebræ with a force just sufficient to induce changes in the blood-vessels and inadequate to cause irritation and degeneration of the posterior roots. This possible vascular origin of the process explains satisfactorily the absence of pain as well as the occurrence of the symptoms in a series of attacks.

To these two cases may be added a third, the only one in literature which the writer has been able to find in which absence of characteristic pain was especially noted. It is fully reported by J. M. Clarke in *Brain*, LXX. and LXXI., 1895.

It was an endothelioma, loosely attached to the external surface of the spinal dura mater, and adherent to the inner and posterior surfaces of the cervical vertebræ. The tumor extended from the origin of cervical nerve root V to dorsal I. It lay chiefly on the dorsal surface, flattening the whole of the cervical enlargement of the cord, which at one point was almost completely surrounded by the growth. The nerve roots were compressed and atrophied and there were the ordinary ascending and descending degenerations. The tumor was soft and friable. The symptoms caused by the new growth covered a period of three years. They were paralysis and loss of sensation, but without pain characteristic of spinal tumor. This absence of pain is emphasized by the author. The only painful symptoms were some dull aching in the shoulders, some temporary burning sensations in the limbs following a fall, and some tingling pains under the finger-nails and in the finger-tips.

The pains of tumors of the spinal cord, excepting those which develop from the embryonal tissue surrounding the spinal canal, are felt in the nerve trunks and in the cord itself. They have been described by a

variety of adjectives; they usually are of terrible severity.

An attempt to account for the absence of such pain in the cases cited, meets with considerable difficulties, although all three have certain characteristics in common. All were of slow growth, and pressed but slightly on the cord and two were of soft and yielding consistency.

The causation of pain in intra-vertebral new growths depends entirely upon pressure. The point where the pressure is applied or the rapidity of the growth of the tumor which exerts it, seem of secondary importance. Many cases have been accompanied with severe pain where the growth was entirely on the ventral surface, far removed from the posterior roots. The position of the tumor in reference to the membrane appears to influence but little the occurrence of pain. Extra-dural, intra-dural or medullary, all may cause intense suffering.

One would naturally suppose that a tumor developing slowly would be less painful than one of rapid growth. This, however, does not appear to be the case. An intra-dural sarcoma, situated ventrally, caused severe and frequent pain for seven years. (Baierlacher, *Deut. Klinik.*, Bd. XII., 1860, p. 295, quoted in Horsley's table).

The most important factor, as adduced from Cases II. and III., both of which were very soft and friable, is the consistency of the tumor. Such new growths as readily soften and degenerate are the ones least liable to be accompanied by pain.

If any conclusions may be drawn from the cases here cited, they are these: First, that there is a probability that tumors of the spinal cord are more frequently painless than is generally supposed; and second, that absence of pain in a tumor of the spinal cord is indicative of its nature (endothelial, syphilitic, tubercular) rather than of its situation.

Reference to most of the literature on the subject may be found in articles by Gowers and Horsley (*Med. Chirug. Transactions*, LXXI, 1886); by Macalester (*Sarcom des Ruckenmarks, Dissertation Zurich*, 1891); by Mills and Lloyd (*Peppers Syst. Medicine*), and by Starr (*Am. of Med. Sc.*, June, 1895).²

² The writer's thanks are due to Prof. Prudden and Dr. Van Gieson, for their kindly suggestions during the preparation of this paper.

A CASE OF URÆMIC CONVULSIONS, FOLLOWED BY PERSISTENT HEMI-ATAXIA.¹

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AS is well known, various unilateral nervous disturbances may occur in the course of Bright's disease. Hemiplegic attacks, for instance, and more rarely monoplegias, may occur during or follow an uræmic convulsion. These attacks may so closely simulate ordinary cerebral hemorrhage or embolism, as to be practically indistinguishable from them. Again, localized convulsive phenomena, especially unilateral convulsions, are not of infrequent occurrence during uræmic attacks, and such a seizure may also closely simulate a convulsion due to a limited focus of organic disease. Cases of uræmic hemiplegia and hemi convulsion have been described, more especially by Carpenter, Patsch, Jackel, Raymond, Chantemesse and Tenneson, and by myself.

Autopsies upon these cases have failed to reveal any focal lesions. In two cases of my own previously reported, nothing was revealed but a diffuse oedema of the membranes and of the brain substance. No trace of any focal lesion could be discovered. I also reported some years ago, two cases in which persistent hemi-chorea occurred in the course of Bright's disease. One of the latter came to autopsy, and again no focal lesions were detected either upon gross or microscopical examination. I desire to add to this collection of cases the following which, in my experience, is unique:

G. S., aged 31 years, white, male, a native of Germany and a clerk by occupation, was admitted to my wards in the Philadelphia Hospital, October 31, 1895, in an uræmic convulsion.

¹ Read at the meeting of the Philadelphia Neurological Society, December 16, 1895.

The following family and personal history was obtained from his wife, and in part from himself, during the period of his convalescence. His father died from alcoholism; his mother, brothers and sisters are living and well. No history of any nervous, diathetic or hereditary disease in the family. The personal history was negative, except that the patient had used alcohol excessively some eight years ago. A specific history was denied. He was well until April 28, 1895, when he had a general convulsion, which lasted forty minutes, during which he became unconscious. A second attack occurred one week after the first, but this time began with convulsions of the left hand and arm. The attack was preceded by a sensation of tingling in the hand and lasted some ten minutes. There was no paralysis or weakness of the limb afterward. A third attack occurred one week after the second, but no clear account could be obtained in regard to it. A fourth attack occurred shortly before the patient was admitted to the hospital. As in the second attack, the convulsion was preceded by tingling in the left hand.

On October 28, according to the account furnished by his wife, the patient suddenly fell forward; he became unconscious, and the legs and arms of both sides became convulsed. For three days following, he was hallucinatory and delusional, and sometimes unconscious. At times he saw imaginary people and talked and cried out at them. He voided urine, it was stated, only once in these three days. He had also no bowel movement. He seemed unable to swallow, and was, therefore, given no nourishment. On admission to the hospital, October 31, 1895, he was confused, delirious and at times violent, raving incoherently. Sometimes he attempted to strike those about him, using both arms in the attempt. Muscular twitchings were noted on the left side of the face, which was also somewhat paralyzed. The mouth was distinctly drawn toward the right. On rousing the patient it was impossible at times to get him to protrude the tongue, which was always protruded in the median line. The tongue was also the seat of fibrillary twitchings, resembling those observed in the face. When lying quietly there was conjugate deviation of the head and eyes to the right. The pupils were decidedly unequal, the right being dilated, the left apparently normal. Occasionally tremor of the lower jaw was also noted. It was observed that the left hand, forearm, and

arm were distinctly paretic. There was no paralysis of the legs, though the patient resisted less with the left leg than with the right. Sensation did not appear to be anywhere lost.

About ten ounces of urine was obtained by catheterization and revealed a large amount (1-5 bulk) of albumen, it was high-colored and presented a specific gravity of 1.031.

On the day after admission, the weakness of the left arm had deepened so as to constitute a well-marked paresis. There was also evident now an undoubted weakness of the left leg. The paralysis of the left side of the face as on the previous day was slight. The pupils revealed the same conditions as before save that little or no response could be obtained to light. The patient seemed less stupid, though he was still confused and delusional. However, he responded when urged to protrude the tongue or to move the limbs. He moved the right hand and arm freely in response to directions, the left arm he also moved, but the movements consisted almost exclusively of shoulder movements.

A vigorous treatment directed to the skin and kidneys was instituted. Gradually the secretion of urine became re-established and for a time both the bladder and the bowels were voided spontaneously into the bed. The improvement, as regards the mental symptoms and the hemi-paresis, was slight at first, but day by day these phenomena became less evident, until by the 22d of November the paresis had disappeared entirely from the face, entirely from the left leg and almost completely from the left arm. Analysis of the urine now revealed a specific gravity of 1.015, but no longer any albumen. At this time, also, the eyes were examined by Dr. de Schweinitz, who reported that in the right eye light reaction of the pupil was normal and that the fundus, with the exception of marked enlargement of the central vein and some distension of the central lymph sheath, presented no abnormalities. In the left eye the pupillary reactions were also normal. The fundus revealed a condition similar to that of the right eye and in addition a clouding of the nasal half of the disc. There were no paralyses of the ocular muscles. The fields of vision were not taken.

The man was now permitted out of bed and presented no special features, save that he did not seem to use the left arm as freely as the right. His condition con-

tinued steadily to improve, and on November 30th he was able to walk freely about the wards. He was now re-examined with some care. It was observed that he used the left leg rather awkwardly as he walked, but the gait differed markedly from that of ordinary hemiplegia. It was further noted that the sway with eyes closed was plus and markedly exaggerated toward the left. When asked to stand upon the right leg alone he performed the task without difficulty. When asked to maintain his weight upon the left leg alone he staggered badly, although the leg was strong enough to support his weight when he was gently steadied. When the left arm was examined it was noted that all of the movements of the arm and wrist, hand and shoulder could be freely performed, but the limb was excessively ataxic. This was revealed in attempts to approximate the finger to the tip of the nose, the chin or the ear. On testing the grip it was found to be but slightly paretic. The right arm presented no abnormality. On examination of the knee-jerks, both were found minus, though the left seemed less so than the right. The muscles of both the left leg and arm were flaccid, no trace of rigidity being anywhere present. Sensory losses as before, were absent.

In speaking, the patient did not pronounce his consonants, especially labials and dentals as sharply or as well as normally. There seemed to be no paresis, however, of tongue or lips. The words seemed to be drawn out a little, and at times slight halting was noted. The mental condition was enormously improved. He could give clear accounts of all events save those immediately connected with the graver period of his illness. The memory was good, both for remote and recent events. On December 5th he was discharged from the hospital at the request of his friends.

It is difficult in the present light of our knowledge to interpret the pathology of this case, especially in view of the negative findings in cases of uraemic hemiplegia and hemi-eclampsia. It is not improbable, however, that when there are such persistent symptoms as hemichorea or hemi-ataxia, that some organic change has accompanied or resulted from the convulsive attack, and yet the location of such a lesion must be a matter of speculation. It has sometimes seemed to me probable that the athetosis and chorea, which sometimes follow hemiplegia, are due to some lesion of the segmental

fibres (the haubenfasserung) as they pass through the internal capsule, or possibly that the lesion is at the cortical origin of these fibres in the parietal lobe. Unfortunately, our knowledge regarding the relations of the segmental fibres is not accurate nor conclusive, but may it not be that the relation of these fibres to the olivary body of the same side and indirectly with the opposite lobe of the cerebellum is significant as regards their function? May it not be that they are thus related to muscular co ordination, or perhaps constitute fibres conveying muscle sense impressions? I know of no explanation that has thus far been given for ordinary post hemiplegic chorea and athetosis. I merely suggest lesions of the segmental tract or of its cortical origin as a possible explanation.

A CONTRIBUTION TO THE PATHOLOGY OF PARALYSIS AGITANS.¹

By JAMES R. HUNT, M.D.,

Pathologist to the Episcopal Hospital.

Clinical history of case :

Rebecca L., aged 73 years, was admitted to the Home for Incurables under the care of Dr. Charles W. Burr, July, 1892, suffering from paralysis agitans. Her previous health had been excellent; there were no hereditary neuropathic tendencies. It is interesting to note that the tremor appeared soon after a severe nervous strain caused by the care and anxiety of nursing in her family.

The disease began in 1885, seven years before admission to the home, as a fine vibratory tremor, involving both hands, very slow in its progress and involving in rotation the forearms, the arms, the toes and the legs. Patient was able to walk until recently; gait festinating.

The examination of patient on admission to the home was as follows:

Patient is pale and very emaciated, presenting the Parkinson walk. There is a constant fine tremor of hands present during rest. The arms and legs are tremulous. The tongue trembles on protrusion. These movements are all exaggerated by excitement and exertion. The thumb and index finger are held in the characteristic pill-rolling attitude. The proximal phalanges of all the fingers are flexed, the middle extended and the distal flexed.

The toes are fixed and irregularly flexed and extended. Movements of the muscles are slow and tedious. They are easily fatigued and often the seat of throbbing pain. There are contractures at the knee-joint. Examination of urine is negative; heart and lungs normal; no atheroma; no areus senilis.

¹ Read at the meeting of the Philadelphia Neurological Society, December 16, 1895.

Sensation is undisturbed; knee-jerks are present, their extent, however, cannot be estimated owing to the muscular rigidity. Biceps jerk is present; chin-jerk absent; plantar reflexes active; no nystagmus; intelligence good; thought slow.

A subsequent note reads:

Patient is much weaker. The tremor ceases during rest, but reappears after the slightest motion or emotion. An exception to this is the tongue, which is to be seen constantly quivering in the floor of the mouth. Speech is slow and whispering, but not screaming. Death from exhaustion December 25, 1895, nine years after the earliest symptoms.

Post-mortem examination.

Skull is thin, the under surface of dura presents slight hemorrhagic pachymeningitis. Pia mater is opaque. Spinal membranes, and the form and consistency of the spinal cord are normal.

Microscopical report.

The brain, spinal cord and peripheral nerves were hardened in Müller's fluid, and the tissues stained with carminate of soda, aniline blue-black and Weigert's hæmatoxylin. Sections were wanting from the Rolandic regions of both sides, the cerebellum, the pons, medulla and cord, also the peripheral nerves.

Cortex.

The cell-body, nucleus and nucleolus of the ganglion cells of the cortex are clear and distinct. Only a few cells appear hazy and stain imperfectly. The apical and basal processes are sharply defined. There is no increase of the connective tissue and the blood-vessels are normal.

The minute structure of the cerebellum is normal. The ganglion cells in the pons and medulla show moderate pigmentation, and the blood-vessels are sclerosed, especially in the medulla, but there is no union of the perivascular neuroglia.

The medullated nerve tracts and ependyma of the fourth ventricle are normal.

Cord.

The cells of the anterior horns are excessively pigmented. This pigmentary degeneration is most marked in the cervical and lumbar swellings. In not a few of the cells is the nucleus and nucleolus completely obscured by coarse yellow granules. In the dorsal region, the cells in Clarke's columns are the chief suffer-

ers. The cell-outline is clear and the processes sharp and distinct.

The blood vessels ramifying in the substance of the cord, are sclerosed, especially those in the posterior columns. In the white matter, each blood vessel is surrounded by a well marked ring of neuroglia, from which prolongations radiate into the surrounding structure. In the central and median portions of the posterior columns, these prolongations are largest in size and number, and, with Weigert's coloring, show as diffuse light-colored areas.

The blood vessels in the gray matter, although thickened, present no increase of the surrounding glia. The pia matter and its prolongation, while prominent, are wholly normal.

The white tracts are normal. Here and there, especially in the posterior columns of the cord, small circular or oval spaces are seen. These are considered by some, notably Redlich, to indicate areas of degeneration, but in my own case, I am quite sure that they were simply artifacts. The central canal is tightly packed with epithelial cells, which stain intensely, and there is slight thickening of the surrounding neuroglia. Many amyloid bodies are present, especially in the posterior columns. The peripheral nerves, excepting an increase in the endo and perineurium were normal. Unfortunately no muscular tissue was preserved for examination.

To summarize then, the only alterations found were the excessive pigmentation of the ganglion cells in the anterior horns, with sclerosis of the blood vessels and increase of the pervascular neuroglia.

But even these, when the age of the patient is considered, must be regarded as normal to that period of life. So far, then, as the nervous system is concerned, the examination in this case was negative.

Literature.

Since Parkinson's description of the disease in 1817, the pathology of paralysis agitans has been the subject of much discussion and of much speculation.

The earlier writers reported cases showing degenerative lesions in the crura, pons, medulla and basal ganglia.

In Parkinson's case the pons and medulla were sclerotic. Hall's case presented sclerotic changes in the pons and corpora quadrigemina, while Skoder reports a

case with foci of softening in the pons, medulla and cord.

The earlier cases are of very doubtful value, as before the observations of Charcot, Ordenstein and others, disseminated sclerosis was frequently mistaken for Parkinson's disease, and vice versa.

The results of some of the most recent investigators are as follows :

Koller² reports three cases, in which were found sclerosis of the blood-vessels of the cord, chiefly in the posterior columns ; increase of the neuroglia, apparently taking its origin from the vessel walls ; pigmentary degeneration of the cells ; alterations around the ependymal canal.

Dulief's³ two cases presented pigmentary degeneration of cells in the cord ; a slight grade of sclerosis ; numerous amyloid bodies ; cellular blocking of central canal, with increase of its surrounding neuroglia. The brain, cerebellum, sympathetic and peripheral nerves were normal.

Von Sass⁴ found arterio-sclerosis with an increase of the connective tissue ; numerous amyloid bodies ; the central canal blocked in many places ; an interstitial neuritis and muscle changes. Many of the muscle fibres were atrophied ; striations indistinct with an increase of the nuclei.

Jaffray's⁵ report of three cases was very similar to the above. Pigmentation of the ganglion cells of cord, especially of Clarke's columns and an occlusion of central canal by epithelial cells.

In one case there was a sclerotic focus in the pons and in the medulla.

Borgheim⁶ reports sclerosis of blood-vessels in brain and cord, with an increase of the connective tissue.

Dana⁷ describes the microscopical changes in two cases :

Case 1.—Some of the cortical cells are indistinct in outline and stain imperfectly. Apical processes atrophied or granular. Sclerosis of the blood-vessels in the cord, with an increase of the connective tissue in the

² Koller : *Archiv. f. Path. Anat.*, Bd. cxxv., 1892.

³ Dulief : *Hop. Archiv. Comp. rend. d. trac. du bd. de therap.*, pp. 54-56, 1889.

⁴ Von Sass : *Medicin Wochenschrift*, No. 16, 1891.

⁵ Jaffray : *St. Petersburg Med. Wochenschr.*, B. 165, 1891.

⁶ Borgheim : See Dana's paper, *N. Y. Med. Jour.*, June, 1893.

⁷ Dana : *N. Y. Med. Jour.*, June, 1893.

lateral columns. Cells pigmented, some are atrophied and destitute of processes.

Case 2.—Thickening of blood-vessels, with an increase of the supporting structure in the lateral columns. Degeneration of cells in anterior horns. Diminution in the intricacy of the fibre network in the gray matter. Brain was not examined.

Redlich^{*} found in two cases of Parkinson's disease, a sclerosis of the blood-vessels in the cord, with an increase in the peri-vascular neuroglia. These changes were most marked in the central portion of the columns of Goll. Here and there fibres were crushed by the contraction of this neuroglial network.

The degenerated fibres liquefying and undergoing absorption leaving behind them circular or oval spaces most numerous in the posterior columns. Cells of the anterior horns and vesicular columns are normal. Central canal packed with cells; numerous amyloid bodies. In conjunction with the above, Redlich reports the examination of a senile cord. It presents changes similar to those found in the Parkinsonians, but of less severity.

In the above fifteen cases, including my own, the only changes recorded as worthy of notice were the pigmentary degeneration of the ganglion cells, thickening of the blood-vessels with a neuroglial sclerosis, most marked in the column of Goll, and according to Dana in the lateral tracts, numerous amyloid bodies and alterations within and about the ependymal canal.

When we consider that these changes are present in most of the cords examined from old persons, who presented none of the symptoms of paralysis agitans, we are forced to admit, that as yet no lesion has been discovered in the nervous system capable of producing the disease.

^{*} Redlich: *Jahrbücher für Psychiatrie*, Bd. 12.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, January 7, 1896.

HOWARD D. FISHER, M.D., PRESIDENT.

PROGRESSIVE MUSCULAR ATROPHY.

DR. G. M. HAMMOND reported a case of progressive muscular atrophy, beginning in the facial muscles. He said that many such cases were looked upon with suspicion, but in this instance the history was so clear that he felt the diagnosis was correct. The photograph exhibited had been taken about one year ago. The patient was a middle aged woman, who at one time was exceedingly vigorous and muscular, and weighed one hundred and eighty pounds. She weighed over one hundred and sixty pounds prior to the advent of this disorder. The family history was excellent, there being no nervous disorder of a serious nature. Fourteen years ago while a nurse, she had contracted some skin disease which had resulted in the development of a number of abscesses. About two years ago she began to notice a hollowing of the left cheek and temple, and this had increased until at the present time the atrophy was very marked. The next thing noticed was a weakness of the arms and legs, and atrophy of the muscles in those parts. The paresis and atrophy seemed to affect both arms simultaneously, and later, both legs. Quite recently the atrophic process had begun to affect the right side of the face. He had first seen her in October, 1894, at which time all muscular efforts were performed with difficulty; fibrillary twitchings could be observed on the left side of the face, and less frequently in the upper and lower extremities. The electrical reactions were normal in quality, but reduced quantitatively. There were no disorders of sensibility except that at times there had been some rheumatic pains in the neighborhood of the knee joints. At first the reflexes were exaggerated, but at the present time the knee jerks are less active than when first seen. The main point for consideration was whether this was a primary myo-

pathy, or whether it was of secondary origin. The fact that it began in the face might lead one to suppose that it was a primary atrophy, but it should be remembered that this disorder began in the latter half of life, there was no family history of this disorder, and the distribution did not correspond to that which was observed in the primary disorder. Moreover, in primary myopathy, the muscles of the forearm and leg would escape the atrophic process, whereas in the case presented these muscles were all involved. The case was chiefly of interest from the situation of the primary points of atrophy, which, he considered, to be very unusual indeed. The case was unusual in that the muscles were not affected in groups, but it did not follow the course of the dystrophies, and it seemed to him that the case must be of central origin. He thought it was not a case of progressive facial hemi-atrophy because there were no changes in the bones, or in the skin, and because other parts of the body were involved, and the other side of the face was already beginning to be involved. The process was evidently progressive; the patient was decidedly weaker than a year ago.

JACKSONIAN EPILEPSY; OPERATION.

DR. HAMMOND also exhibited a man who had had Jacksonian epilepsy, and had been operated upon several months ago by Dr. Abbé. His attacks had come on with a sensory aura in the hand. He had had as many as fifteen or more convulsions a day. The operation was done on the left side of the skull last March. On removing the bone, the operator had found a circumscribed area of pachymeningitis, and a considerable adhesion of the membrane underneath. A piece of thin rubber tissue had been inserted after separating the adhesion. The bone had been replaced, and the wound closed. There had been no convulsions since this operation. Prior to it the bromides had had no effect on the attacks; since the operation, these remedies had been given. Quite recently the aura had returned, but there had been no attacks. The speaker said that he could not see the advantages of using the rubber tissue, which in this case had been employed in lieu of gold leaf. There was a well-marked history of syphilis, and this was considered to have been the origin of the disorder.

RAYNAUD'S DISEASE.

DR. A. WIENER exhibited a man who had been referred to him by Dr. Goldstein. Nine years ago the patient had had a fracture of the left forearm with no accident to account for it. Iodide of potassium was necessary in addition to splints to secure proper union. Later one of his toes had become carious, and had been finally amputated. The great toe was similarly affected subsequently, but even under local and constitutional treatment this also had to be amputated, together with the great toe on the opposite side. Inquiry showed that eight years ago this man had been a brass polisher. At the time of the original fracture there had been no pain. A few months after this he had developed severe pains over the chest and forearm. He then changed his occupation, and after this was exposed a great deal to the weather. At the present time the same gangrenous process which had been present in the toes was going on in the fingers of one hand. This history, the speaker said, made it evident that the patient was suffering from Raynaud's disease. He had excluded syringomyelia because there were no sensory disturbances. There was no sugar or albumen in the urine. He expected to put this man to bed and pack his feet in cotton. Constitutional remedies would, of course, be employed.

DR. C. A. HERTER said that there could be little question regarding the diagnosis. As to the local condition and the sclerosis of the vessels he thought it was secondary to the extraordinary changes in the blood vessels.

DR. JOSEPH COLLINS said that he also felt that there could be no doubt about the diagnosis, and he also agreed with the last speaker regarding the relation of the changes in the vessels to the present symptom complex. He had seen five cases of Raynaud's disease during the past year. The administration of iodide of potassium and nitroglycerine—the treatment usually recommended—he considered rather dangerous unless carried out with a good deal of caution. The only treat-

ment, apparently of service, was placing the patient in the horizontal position for a long time, together with the administration of considerable quantities of water, and other measures to preserve vascular equilibrium. Where it was possible, the patient should be sent to a climate which would admit of his living out-doors almost all the time. In looking up the literature of Raynaud's disease he had been surprised at the statement made by several operators that this was an incurable disease. Personally, he was of the opinion that Raynaud's disease, when not dependant upon profound vascular change, gave an exceedingly good prognosis, provided the patient could be under control.

Dr. HIRSH did not think that Raynaud's disease, as such, was a sufficient diagnosis. It was only a collection of clinical symptoms which, it had been shown, might be due to various anatomical lesions—to disease of the blood-vessels, disease of the peripheral nerves, to central lesions, and, in some instances, to pure hysteria. We could not say that the prognosis was good or bad, for it depended upon the particular underlying condition.

PARÆSTHESIA OF THE EXTERNAL CUTANEOUS NERVE.

Dr. HIRSCH presented a man, fifty years of age, who had had syphilis eighteen years ago, and had indulged liberally in alcohol. Two months ago, after a shipwreck and much exposure, he had arrived in this country. At the time he was wrecked, for about one hour a considerable weight had been borne by one leg, and shortly after this he had noticed a peculiar sensation on the outer side of this limb, the left, about four inches above the knee. It covered an area the size of the palm, and was never noticed at night, or while reclining or sitting. The sensation was especially aggravated by cold. It was not like any ordinary pain. According to the patient's description, it was a sort of burning sensation, or a "burning cold," as he expressed it. Examination showed no change in the electrical reaction, and no evidence of disease with the exception of a diminution of the thermal sense. The case was, therefore, a paræsthesia in the area of the external cutaneous nerve. The speaker said that a number of these cases had been reported last March by Roth, and a few days later Professor Bernard, of Berlin, had independently published several cases of this kind. A number of other cases had since been reported, and many of them had occurred in physicians. One distinguishing feature was the indefinite character of the paræsthesia, and the fact that it was never noticed when the patient was reclining or sitting. Acute infectious diseases had been mentioned in connection with the etiology of the condition. In the case presented, it was possible that syphilis and alcoholism might be considered as predisposing causes, while the prolonged pressure and the exposure at the time of the shipwreck might be looked upon as exciting causes.

TWO CASES OF TUMOR OF THE SPINAL CORD,
UNACCOMPANIED WITH SEVERE PAIN.
(See page 171.)

Dr. PEARCE BAILEY read a paper with this title.

Dr. B. SACHS said, that this question of pain as a diagnostic symptom of tumor of the spinal cord had only been recently discussed before this Society. At that time he believed he had been in the minority in stating that he did not think so much stress should be laid upon this symptom as had been generally done; hence, he was glad to hear of these cases which confirmed his view. This symptom, pain, would naturally arise in those cases in which there was a very large tumor on the ventral surface actually pressing the cord against the posterior surface; it would arise still more frequently if the tumor invaded the posterior root fibres. He would again emphasize the fact that root symptoms were important in the earlier stages of tumor, whether they were of the sensory kind, or of the atrophic order. In the majority of cases pain was, of course, present as an early symptom. In addition to the root symptoms, the next important point was, that the symptoms in the majority of cases were apt to be unilateral, with a rapid involvement later of both halves of the cord; there was not that symmetry in the symptoms which was usually observed in the subacute affections of the spinal cord.

Dr. LEONARD WEBER remarked, that these tumors described in the paper were not tumors of the cord, but were upon the cord. In 1891, he had met in Germany, a physician who had had a large experience with tumors of the spinal cord. The history of these cases showed that there had been no special pain present.

Dr. C. A. HERTER thought that without doubt these extra-dural tumors should be classed as tumors of the spinal cord, for when they produced symptoms they did so by their influence on the cord and its nerve roots. He also thought that it was pretty well established that extra-dural tumors were much less apt to produce pain than intra-dural tumors. The cases so well reported

in the paper were certainly valuable additions to this subject. Some years ago, he had gone over the subject of solid tumors of the spinal cord, and had found only thirty-six cases, three of them having been in his own practice. In several of these there had not been much pain, at least in the beginning of the disease. A possible explanation of this might be found in the fact that the origin of a tubercle was usually in the substance of the cord itself—that the tubercular process began by the deposition of tubercle bacilli in that portion of the cord which afforded the best nutrient basis for the bacilli. In one of these cases it was quite evident how the process had extended by a narrow line of blood-vessels into the anterior horn of one side, and had subsequently extended to the white matter. It was easy to see how in a case of this kind there should be no pain. In syphilitic tumors of the cord the process was apt to originate in much closer connection with the pia mater, thus making root symptoms, or a meningitis, an involvement of the circumference of the cord being more liable to occur. He had been impressed with the different character of the symptoms in cases of sarcoma invading the cord from without, and cases of glio-sarcoma starting from within. In the majority of cases of sarcoma of the spinal cord, the process was a secondary one, and almost invariably involved the posterior nerve roots, giving rise to intense pain. Another class of sarcomatous tumors originated about the central part of the cord, and in these there was little or no pain. The reason for the absence of pain in cases of syringomyelia was the early involvement of the sensory fibres.

The PRESIDENT said, that tumors outside of the cord substance were more likely to cause pain, unless they were extra-dural; but a tumor within the cord, unless so large as to compress the nerves, could hardly be expected to cause pain. Again, in cases of tumor outside of the cord the pain was usually of a shooting character, and followed the course of the nerve irritated. The explanation of the absence of pain in the cases recorded in the paper, appeared to be due rather to the situation than to the nature of the tumor.

TWO SPECIMENS OF BRAIN TUMOR, WITH REMARKS ON THE DIFFICULTY OF DIAGNOSIS.

The PRESIDENT presented a pathological specimen removed from a laborer, fifty-six years of age, who gave a history of an injury to the head when twelve years of age. As a result of this, there had been during his boyhood repeated slight attacks of epilepsy. Four years previous to his death, he had received another injury to the side of the head, and two years later he had begun to have definite localized convulsive seizures on the left side of the body. They always commenced with a sensation in the left hand of slight tingling or numbness. This would be followed by a full convulsion involving the left hand and arm, and sometimes the leg. These attacks recurred at intervals of two or three weeks. He had no pain, and gave no history of disturbed vision, and the ophthalmoscope showed no optic neuritis. The only other symptom was a slight paresis on the left side, lasting only a few days, after each epileptic seizure. On examination, the gross strength was good; there was some loss of muscular sense; there was some ataxia in the left hand, and exaggerated reflexes, particularly of the left patella. There had been no headache. In June, 1859, an ordinary trephine opening was made, and some adhesions between the dura and skull were found. The attacks ceased for some time after the operation, but when seen by the speaker last October, these attacks had returned. A diagnosis had been made of a localized lesion, probably due to pachymeningitis following a trauma, and involving the hand centre. An operation was, therefore, performed by Dr. Stimson. The dura was found adherent, as had been expected. The operation was attended by much hemorrhage, and followed by great shock, and in a few hours death ensued. At the autopsy, a large sarcoma was found, involving the leg centre and a portion of the arm centre, and extending a considerable distance back into the parietal lobe.

The second specimen had been removed from a boy, eighteen years of age, having a negative family

history. For two years previous to his death, he had complained of more or less headache. His gait had been uncertain and staggering, but in no particular direction. He complained of considerable continuous headache. For the last year he had complained of loss of vision. Examination showed optic neuritis and optic atrophy, and the boy was almost blind. There had been convulsions during this time, but there was a history of one or two attacks of vomiting at long intervals. A diagnosis had been made of tumor of the cerebellum, localized on the left side because of the deafness on the left side, a very slight facial paralysis, and the loss of sensation on the left side. Two or three days before death, there were several convulsions with vomiting, and he died in coma. There was at no time any mental dullness or apathy. The autopsy showed, according to the report of Dr. Warren Coleman, a large single cyst containing 73 cc. of slightly turbid, straw-colored liquid, which had not been coagulated by the formalin, though the cyst wall was very thin over its upper part. The growth was situated in the left hemisphere of the cerebellum. The liquid apparently contained no albumen, as it did not coagulate on the addition of the commercial formalin or on the application of heat. It did contain mucus. Examined microscopically, the liquid was found to contain an abundance of old blood cells, well hardened, a moderate number of protoplasmic mononucleated cells, apparently leucocytes, whose protoplasm was filled with highly refracting globules, and larger flat cells, mononucleated, resembling endothelium. Strings of mucus were found in abundance. The liquid contained something which turned Fehling's solution a rich purple, and which threw down a red sediment after twenty-four hours. The growth was a glioma.

Dr. SACHS referred to a case, seen many years ago, in which there had been attacks of hemiplegia and intense frontal headache. A diagnosis had been made of gumma, but the autopsy had shown a glioma very much like that presented. All the symptoms had disappeared for about four months under the use of anti-syphilitic treatment.

Dr. L. STIEGLITZ said, that the first case reminded him of one operated upon about a year ago, in which a glio-sarcoma had been found. In this case there had been very few symptoms present for a number of months. One very valuable symptom had been the ex-

quisite tenderness to tapping the skull. He believed that this symptom could have been elicited in the case just reported because of the presence of adhesions. It was unfortunate that in the first operation, the attending surgeon had made the trephine opening so small—altogether too small to admit of proper exploration. The second case closely corresponded to one he intended soon to report, in which there had been deafness on one side. The case also brought out the malignity of many tumors of the brain.

Dr. HERTER remarked, that the long duration of the condition in the first case was a point to be considered in connection with the presence of such few symptoms

SPECIMEN, SHOWING MULTIPLE GROWTHS IN THE BRAIN OF A CHILD.

Dr. JOSEPH COLLINS presented a specimen from a child who had presented a condition similar to that formerly described in the books as spurious hydrocephalus. The patient had been admitted to Dr. Chapin's wards in the Post Graduate Hospital, and a diagnosis of tumor of the brain pressing on the third ventricle was made. On the inferior surface of the cerebrum was a new growth about the size of an American walnut, and on opening the brain, four other growths were found, one situated near the posterior commissure, one pressing against the head of the right caudate nucleus, while another seemed to usurp the right anterior quadrigeminal body. Microscopically, the growth was tuberculous.

Dr. C. L. DANA described the clinical history of this case. He said that the child was about two years old, and had been perfectly well up to last August, when there had been a sharp attack of diarrhœa. After this the child became sleepy, and remained all the time with the eyelids closed. There was no paralysis, and no pain and no convulsions. About three months later, he had examined the child. At that time it was cataleptic; there were no paralysis; no sensory symptoms; it could hear and could swallow; there was double ptosis and slight nystagmus; there was no ophthalmoplegia except the double ptosis. The hebetude deepened, but there were no convulsions. The child died in the latter part of December. The speaker said that he had tapped the spinal cord in this case and removed two drachms of clear fluid which on examination showed no evidence of tubercle bacilli. The autopsy showed these multiple tubercular tumors. He had made the diagnosis of tumor of the mid-brain. He believed that most of the symptoms were due to the growth involving the corpora quadrigemina. He had been particularly interested in this marked somnolence in cases in which there was pressure on the third ventricle, or on the corpora quadrigemina.

Dr. SACHS said, that there was a marked resemblance between this case and one reported by him in an article on disease of the mid-brain region. In the case referred to, there had been an increased apathy, but owing to its tubercular nature he had attributed this to the stage of the disease. He had been surprised to find also in his case several tumors in the cerebellum as well as a tumor in the mid-brain region.

Dr. W. B. NOYES presented a specimen removed from a man, who four years ago had been crushed between two cars. The pressure had been exerted at about the level of the first lumbar vertebra. No paralysis or fracture had resulted, but he had suffered from shock, and had been confined to bed for two months. About one year ago he had had an apoplectiform attack characterized by blindness and deafness, and paralysis of both legs, lasting for twenty-four hours. When seen by the speaker three weeks ago, there had been spastic paraplegia, marked ataxia, increased knee-jerk and ankle clonus, great tenderness all over the body, but especially in the head. A diagnosis had been made of brain tumor. Death occurred from a sudden paralysis of respiration. The autopsy showed an endothelioma of the dura mater, occupying the place of the occipital lobe. The tumor was irregularly kidney-shaped, with its broadest diameter from side to side. Its weight was 300 grammes. It was hard, nodular, and did not infiltrate the brain tissue. The spinal cord was examined, but nothing abnormal found.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, December 16, 1895.

President, Dr. JAMES HENDRIE LLOYD, in the chair.

Dr. JAMES TYSON read a paper on

THE CORTICAL SPEECH AREAS.

DISCUSSION.

Dr. FRANCIS X. DERCUM.—Dr. Tyson stated that the cortical auditory centres had not been established by autopsy. I would call his attention to a case reported before this Society some years ago by Dr. Mills, and published in the *University Medical Magazine*. In that case, both the right and left superior temporal gyri had been destroyed by vascular disease, either hæmorrhage or softening. The patient was totally word-deaf.

With reference to the centre which Dr. Mills has established, and to which Broadbent first called attention, and which centre Dr. Mills has called the naming centre, I might say, that Dr. Mills has presented to this Society the history of such a case, in which a lesion of the centre had occurred, and was demonstrated post-mortem.

Dr. JOHN B. CHAPIN read a paper on

FEIGNED INSANITY.

Dr. CHAPIN presented the outline sketch of eight cases of feigned insanity that had come under his personal observation. The following is an abstract of the conclusions presented by Dr. Chapin in his paper :

“ All of these criminals were habitual law-breakers, or had been the associates of criminal and depraved persons. Two were under sentence of death ; one had committed a homicide ; one had assaulted with an attempt to kill ; one was under indictment for bigamy ; and one was a thief and professional feigner. All had committed crimes and feigned insanity after conviction and sentence, or, after indictment. All had had opportunities of seeing insane persons—were possessed of some degree of low cunning, and probably had the faculty of imitation. Three showed some of the common manifestations of advanced dementia, and one epilepsy. They affected these forms as probably requiring less physical exertion and mental strain. Two appeared to be maniacal for a brief period ; and two showed no characteristic symptoms of any form of insanity—their acts being in the nature of small tricks. In two of the cases, the earliest manifestations that attracted attention were howling and shouting in the night, and throwing torn clothing and bedding out of the cell doors. In every case the simulation began suddenly, and presented forms of mental disorder that require ordinarily for their development the lapse of months and years. There was in every case a sufficient motive to resort to any effort or scheme to escape punishment.

“ It is the usual experience that the symptoms presented to the physician are demonstrative, pronounced, and such as to attract attention at once. This was true in all these cases. This may arise from the belief that prevails among the common people and the inexperienced, that insanity appears suddenly, and is accompanied by some sudden and marked change in the individual. As a rule, I have found it difficult or impossible

to obtain any satisfactory history of these cases prior to the commencement of the supposed attack. It is of rare occurrence that the case has even come under the intelligent observation of a jail physician prior to the outbreak, or, indeed, of any person but a guard or some perfunctory attendant; so that the physician is thrown mainly on his own resources for information, and must frequently contend with unwilling witnesses. It has been my experience usually, to be unable to obtain from any physician or any person related to the case, any notes of observation, or any facts having any bearing on the case.

"If a physician in the course of his official duty is called in the interests of public duty and justice to examine and give testimony in relation to a person suspected of feigning, how shall he proceed to perform the service? In this direction he will obtain few or no suggestions from medical literature, as it is limited in amount and extent, and, as has been stated, he will derive little aid from persons in any way related to the case, and the history of the case will probably be limited and perhaps unreliable.

"In the first place, while he knows from observation and experience that there is a uniformity of forms and types of mental disorder, it will be found that every one of these shamers present some peculiarity that is a separate and special study—just as men differ from each other in their normal conditions, and as cunning and practised villains will devise new schemes to aid them in their simulation.

"While the physician must approach the examination of these cases without bias, and with such judicial calmness as he can command, he must take into account the fact that a dominating motive exists in the mind of the prisoner or suspect to deceive, for it is a part of the case.

"As to any special rule, or tests of precision, to be followed in these cases, I know of none but those determined by experience and observation. Every physician concedes that the cases he meets in the ordinary line of duty, proceed according to some recognized course of development. For instance, he does not look for a characteristic typhoid eruption nor developed small-pox on the first day of the sickness. If he does find these indications on his first visit he properly concludes there have been developmental or prodromal stages which

have passed, and he can even name the day of the duration of the disease. There is an order of development of all diseases which constitutes a rule, if there are exceptions, they must be accounted for on the hypothesis that they are instances of the limitations of our present knowledge.

It is true also of mental cases, that in accordance with a rule as infallibly fixed as in the diseases the general practitioner deals with, there is a general and uniform order of development of every case. Observation and uniformity of experience makes the rule, though there may be exceptions here, which is but another term to indicate that there are limitations of our actual knowledge. If, for example, a man on trial, as in Case 7, is able to sit with his counsel, suggest questions and a line of defense, making an allegation of insanity at the time of the homicide or during his trial—preferring to show that he acted in self-defense—and, when convicted, shall suddenly become reticent, saying he was engaged upon great inventions, and did not wish to be disturbed; manifesting generally delusions of suspicion and fixed ideas, such as belong to the terminal stage of chronic insanity—we are unable to recognize a prodromal or primary stage. This is incompatible with general experience. We cannot reconcile the inconsistencies. The case in a usual order of procedure is thus exactly reversed. Yet referring to this case and to others, we see a man whom to look upon is observed to be doing what insane persons actually do. He is engaged, however, like the actor in the play—doing a part—in itself, perhaps, admirably done. It is then for the physician to close his eyes, and on reviewing the whole to determine whether it is in accord with his actual clinical experiences. Acute mania, or apparently complete or stuporous dementia do not develop in a day, to a degree, that weeks and months of disease are actually known to be necessary to produce. The terminal stage usually does not take precedence of the primary.

“It may be said then in conclusion, that no ascertained test of determining real from feigned insanity absolutely exists, except the rule of experience and the results of observation. The physician must enter upon the examination of these cases free from bias, with a judicial temper, about as he would proceed to form an opinion of any obscure case that might present in his every-day experience. For myself, I have usually

appeared to these persons casually, and engaged them in conversation if possible, or observed them when they refused to talk. I have never concealed the object of my visits when asked, nor my profession, but have announced it before the visit finally terminated. The endeavor should be made, I think, to ascertain the existence of consistencies, or inconsistencies; to ascertain the presence of bodily complications, and constitutional sympathetic disturbances—disturbances such as might be looked for to make out a symmetrical whole. After all efforts to reach a satisfactory conclusion have been exhausted, even after sufficient time which is essential has been allowed to elapse, it is still possible that human judgment may err, but it is not probable.

DISCUSSION.

DR. CHARLES K. MILLS.—Certainly the subject of Dr. Chapin's paper is a most important one. It has been one of my somewhat frequent duties, not only to make the ordinary diagnosis of insanity for committal to an institution, but also in criminal cases, to help decide whether or not the patient is simulating. My own experience has seldom been with just such cases as the doctor has detailed.

There can be but little doubt that Dr. Chapin was right with reference to all of these cases. Most of them were confessed simulators, and it seems to me, unless it be in the last case, the details indicated simulation even without confession. With reference to the last case, of which I have no personal knowledge, and with reference to all cases in which the question of simulation arises, there is one point to which the doctor did not allude, but which should be carefully considered, and that is the possibility of simulation of insanity even by the insane. Probably all of the cases alluded to were pure simulators, but it may possibly be that in a case like the last one, both insanity and also simulation may have been present. Dr. Nichols and others have reported such cases. One case I recall, where a man simulated dementia, I think in collusion with his attorneys, and was examined, and the simulation of dementia discovered, but it was also found that he was a real delusional lunatic. He was committed to the Bloomingdale Asylum where the diagnosis was confirmed.

Dementia, mania, and the demonstrative and nega-

tively demonstrative forms of insanity are most likely to be feigned, and are on the whole most easily discovered, that is, supposing that the man who goes about the work is competent for it. The greatest difficulties are experienced in a different class of cases, that is, delusional lunatics of the paranoiac type, the cases of primary delusional insanity so-called. In such cases, the insane may possess the power of aiding their counsel, directing the trial and helping to support pleas of self-defense. An insane man of this type as a paranoiac who has delusions of marital infidelity and poisoning, may be capable of doing this. Yet these cases are most insane and most dangerous, and it is in just such cases that the greatest trouble arises.

As Dr. Chapin says in the conclusion of his paper, we should ask ourselves, does this case answer to a known type of mental disease? The method of arriving at a conclusion is, bring together all the features in the history and manifestations of the case and then decide whether the case corresponds to a type of insanity, which in all of its features could not be simulated except by a trained alienist. In this way a mistake will rarely be made.

Too much stress, therefore, should not be laid upon simulation, in concluding that a person is not insane, nor upon a confession of the simulation insanity, nor upon the fact that a man alleged to be insane is also a deceiver and liar.

Dr. W. D. ROBINSON.—During eleven years among 6,000 convicts I have had much to do with feigned insanity, and fully agree with the remarks of Dr. Chapin and Dr. Mills. There are two points not referred to which I might call attention. One is that the mind may be so weakened by excessive masturbation as to be tottering on the boundary line between sanity and insanity, and at times unquestionably be beyond sanity. Among people of the convict crime class this is known and has been used to induce temporary insanity. My attention was first called to it by a convict who had, for purpose sufficiently important to himself, by this method induced such condition.

The second point is, that I have always been able to satisfy myself, and afterwards prove correct, a diagnosis of simulation by calling into consultation some physician unknown to the subject, said consultant having previously understood that he was to decide in the subject's

presence that it was a case of true insanity, and that a surgical operation on the brain of the subject, to be done at once, was the only possible hope of saving life or curing the mental disease, and following this by forced ether anæsthesia, prolonging the stage of intoxication on returning consciousness, and in that stage interrogate the subject if the diagnosis has not been made before complete anæsthesia has occurred. I take it, no one is competent to give legal testimony involving life who has not seen some cases of the astounding cleverness of simulators, and I believe I will be borne out in this position by all physicians who have dealt with such exhibitions. Feigning may be perfectly systematized as to the characteristics of a definite type and may last for years, or may be detected and given up very early.

Dr. FRANCIS X. DERCUM.—The general principles on which the diagnosis should be based have been clearly indicated. The question is, does the case correspond to a known type of insanity, not only in the symptoms presented, but in the history? I take it that the history is a most important point, and I believe that it frequently is impossible to make the diagnosis unless we have it. The history, with the symptoms, is the only means that will enable us to make the diagnosis.

Dr. JAMES HENDRIE LLOYD.—A few thoughts have occurred to me while listening to Dr. Chapin's interesting paper. I believe that it was a theory first enunciated by a French observer that simulation was in itself a symptom of insanity; in other words, that some simulators have been truly insane. This, of course, is an extravagant view in regard to all simulators, but there may be something in it with regard to some of them. This man spoken of as a "dummy chucker" who had the ability to ape such a disease as epilepsy, may have possibly been himself a degenerate. The faculty of imitation, we know, is strongly developed in some imbeciles.

The tendency of feigned insanity to run into true insanity has been observed in some cases. Men who for a long time have feigned insanity, have voluntarily stopped the deception with the statement that they could not support it any longer on account of the fear of jeopardizing their mental health.

The point made by Dr. Chapin that departure from the type is an important test is very true, but at the same time we should not forget that some expert and knowing criminals have feigned some types with great

accuracy, Departure from the type is not always seen in feigned insanity; in other words, the rule has some important exceptions.

Another point is that feigned insanity does not always occur in criminals. I have recently been consulted about a case in which a woman is feigning insanity to secure damages. She sustained a slight injury from a falling sign, and it is claimed that she has passed into a condition of acute insanity. Possibly it is a "traumatic neurosis," but I am inclined to think that it is a case of feigning.

Dr. JOHN B. CHAPIN.—There is much to be said on this whole subject, but I shall not take up further time. There is one thought growing out of all this. These people, wretched and depraved as they are, sometimes help us after all. One of the cases cited was interesting as out of it grew a novel proceeding in criminal jurisprudence which might become suggestive. The great difficulty is to get an expert on the stand in an unbiased state of mind, and it might be an advantage if there were a change in the usual procedure in trying these cases. If the counsel on each side would present a list of names of experts from which the judge could make a selection, this might be satisfactory, or the court might create a commission. The commission could investigate the case and make a report. A report may be more valuable and reliable than a statement on the stand. We may have an opinion based on our experience without being able to say how we reached that opinion; just as a man may be able to tell a counterfeit note at once without being able to state the exact points on which he bases his opinion. A physician may present a conclusion in the form of a report, while he would hesitate to state such an opinion on the witness stand, having in mind the cross examination from which he may emerge with little credit. A commissioner, like a judge or juror, should be exempt from a cross-examination as to how he reached a conclusion.

Dr. F. X. DERCUM presented

A CASE OF HYSTERICAL MONOPLEGIA.

The following is the history of this man: Name, Julius Schlegel; age 55; sex, male; weight, 165; nationality, Germany; occupation, sheet-iron maker; social condition, widower. Admitted to hospital September 14, 1895; to nervous ward, November 22, 1895.

Family history.—Father died of an accident, mother of old age; no nervous history.

Previous history.—Has always been healthy; is a beer drinker, smokes and chews moderately; no syphilis; two weeks before Christmas, 1894, had a fall, breaking the right leg in three places, dislocating the right hip, and bruising the left shoulder. Recovered from this but the parts were not very strong. Went to the Episcopal Hospital and stayed four months from the time of accident. In 1868 lost last phalanx of left thumb from an accident.

Present history.—While “setting a heater” September 9, 1895, he received a jar to the left shoulder accompanied with great pain (pain about two inches below clavicle and going nearly through back). Was treated for this two months by bandaging and rest. Did not improve; transferred to nervous wards November 22, 1895. On examination, patient in good physical condition, except the left arm, which hangs at his side in a helpless manner, patient being unable to move it.

At times the man had pain in the breast, and at other times there would be pain in the biceps. The arm was anæsthetic; the distribution of the anæsthesia was peculiar. It was the segmental anæsthesia which we often see in hysteria. The wrist and the hand were decidedly œdematous. This was of a bluish color and at once suggesting blue œdema (l'œdema bleu).

I hypnotized the patient and suggested the disappearance of the anæsthesia and it disappeared promptly. The second or third time, he moved the arm freely in all

directions. I have neglected to hypnotize him recently and he has to a certain extent relapsed as regards the muscular symptoms.

The case is of interest on account of the œdema and typical anæsthesia. There were no contractures of the visual field. The color sense was not tested.

The explanation of this case may be that the man in lifting, strained a few muscular fibres, and this may have been the initial cause of the auto-suggestion that the arm was paralyzed.

Dr. F. X. DERCUM reported

A CASE OF URÆMIC CONVULSIONS, FOLLOWED
BY PERSISTENT HEMI-ATAXIA (See page 179).

Dr. JAMES R. HUNT read a paper entitled,

A CONTRIBUTION TO THE PATHOLOGY OF
PARALYSIS AGITANS (See page 184).

DISCUSSION.

Dr. CHARLES W. BURR.—I examined the specimens from the cord in this case and thoroughly agree with what has been said.

It seems to me that the lesion of paralysis agitans is more likely to be in the cortex or somewhere in the brain than in the spinal cord. I do not see how any spinal cord trouble could produce the symptoms of paralysis agitans. The fact that some of these cases have a slight mental change also points to trouble in the cortex of the brain. I think, however, that there is more than a slight possibility that the somewhat revolutionary theory put forward by certain observers, that this is not a disease of the nervous system, but a disease of the muscular fibres themselves, may be true. It certainly is not a disease of the spinal cord.

Dr. FRANCIS X. DERCUM.—It seems to me that when we think about paralysis agitans, we should bear in mind the experiments of Horsley with monkeys. In some of the cases in which this experimenter extirpated the thyroid gland, the monkeys passed into a condition closely resembling that seen in paralysis agitans. It seems to me, that possibly paralysis agitans is not due to organic disease of the nervous system or muscles, but to some toxine of auto infection.

Dr. GUY HINSDALE.—I have had occasion lately to look up the pathology of paralysis agitans, and I have been extremely interested in the results of Dr. Hunt. The possibility that the tremor is due to a toxine is very great. With reference to Horsley's sheep and monkeys deprived of their thyroid glands, they do develop tremor, and after thyroïdectomy it is not uncommon to observe tetany. That is manifested by muscular spasm, and in all probability is dependent upon a toxine.

I think that the presence of a toxine will be shown to be the explanation of this obscure disease, paralysis agitans.

Dr. CHARLES K. MILLS.—My clinical experience with cases of paralysis agitans, and the opportunity to compare them with cases of ordinary senility and other affections of the nervous system, make me feel that paralysis agitans is a chronic, progressive, degenerative disease of the central nervous system. It is a disease which might be expressed as premature senility with some special lesions which are not present in ordinary senility. The true explanation of this disease yet remains to be found.

Admirable as has been the work done by Dr. Hunt, yet I am convinced that further work needs to be done, and, perhaps, with finer methods of research. Methods such as have been described by Dr. Berkley, applied under favorable circumstances, may help to determine the true pathology of this disease. Somewhere in the nervous system there are special lesions. They are probably not lesions of the cell bodies. We will find the explanation through the newer methods of microscopical research.

Dr. JAMES R. HUNT.—I would emphasize the importance of the muscular condition, which, I think, is the chief condition in the disease. The muscles are not spastic. They are rigid. If this were a cerebral disease, we should expect the muscles to be spastic. The reflexes are usually normal. The theory that this is premature senility of the central nervous system is not borne out by other facts, and I cannot see why it should be so considered. I would like to emphasize the importance of the theory of the muscular origin of paralysis agitans.

The muscles are rigid not spastic, as would probably be the case, were it cortical in origin,—the reflexes are generally normal, which is against central disease. As to premature senility of the spinal cord, there is little, I think, to be said in its favor. The patient is not prematurely old in other respects, nor does senility ever produce the general rigidity of Parkinson's disease.

Adjourned.

American Psychiatry.

UNDER THE DIRECTION OF

R. M. PHELPS, A.M., M.D.,

Rochester, Minn

With the Following Collaborators:

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ORIGINAL STUDIES AND REPORTS.

Francis Schlatter My dear Doctor Phelps.—Your letter and His "Cures." inquiring about Francis Schlatter has just reached me. If there is anything in the world of which I am most tired, it is Schlatter and the silly craze which he seems to have created, not only in Colorado, but throughout many portions of the country.

The case is not singular, but a combination of circumstances have conspired to make an insignificant cobbler the subject of notoriety. The world has undoubtedly gone wrong with him, and this apparently first made him skeptical, then the pendu-

lum of introspection swung to the opposite extreme and he became a religious ascetic, until he no doubt conscientiously believed that he was possessed of great power of healing by faith and prayer. The credulity of the people and the relief of a few functional cases, helped to establish his reputation as a healer. I have not been able to find a single organic disease in which there has been permanent improvement by resort to Schlatter, but no doubt many functional diseases have been permanently relieved, and many symptoms in connection with organic diseases have been temporarily suppressed by his administration. The results have been accomplished by a process similar to hypnotism, although Schlatter is unaware that any power except that of the "Father" coming through him has intervened for the relief of the sick by whom he has been consulted.

Many have sought relief at his hands firmly believing that they would find it, and just so far as expectancy, faith and concentrated attention have kept their minds off their old troubles, they have found relief from suffering.

A few words in regard to Schlatter himself. He began in a modest way, but the silly craze that siezed the people has given him much faith in himself. If he live and continue to try to heal by holding the hands of the sick, and the confidence which many people have placed in him should increase, he will soon become, in his own estimation, not the humble medium through which the "Father" works, but the Son of God himself, and probably eventually with powers equal to or greater than that of the "Father." In other words his paranoiac tendencies have been fed, and will continue to be fed so long as people flock to him for relief. As yet he seems to be a paranoiac of a mild type, but only time will be required for the delusions to become thoroughly fixed and dominant. The actions of the man, especially his refusing to be compensated for his work, indicate that he is sincere in his belief, and is not influenced by any monetary consideration. Were there any selfish interest at stake there would be very much less danger to the man's mental condition than there is at present.

Yours truly,

J. T. ESKRIDGE.

Treatment of Choking Among the Insane.

Choking is peculiarly liable to happen among the aged, paralytic, or paretic insane. About three years ago, called to a case, I found him relaxed, blue, and dying upon my hands. I could not reach the obstructing material as I previously had done. Suddenly it occurred to me to manipulate the windpipe from the outside. Milking the windpipe upward I had no trouble or delay in forcing the food up into the throat so that it could be reached by the finger, and though the

patient was comatose by this time, by artificial respiration in about one minute I had him gasping. I did the same thing again to-day, and the occurrence of this last case and the seeming ease and surety of the result make it seem worthy of a note in this place. This is the fourth case in which I have had opportunity of trying the method, and it has not failed, though in one case too late to save life. It is among the nurses, however, that it ought to be thoroughly promulgated, for they are the ones having the most chances to practice it. Except as noted by myself, I do not find it described in the text-books.

R. M. PHELPS.

Reflexes in Insanity. The reflexes in insanity have received but little systematic study, with the

exception of their occurrence and significance in parietic dementia. The general statement is made that in states of exaltation the reflexes are augmented or exaggerated, while in depressed conditions the contrary rules. Owing to the variability of the cutaneous reflexes, the investigation of these might not prove practicable. A general and systematic study of the deep reflexes in insanity might prove of some value as a diagnostic or prognostic agent. It would, of course, be necessary to take into consideration the form and duration of insanity, the sex and age of the individual, and complicating diseases. The analysis of the deep reflexes of forty cases recently admitted to the asylum is as follows: Males twenty five; females fifteen.

Mania, eight cases. Deep reflexes normal in two, active in six, and in two of these latter there was distinct exaggeration of the knee-jerk.

Melancholia, six cases. Deep reflexes diminished in only one, active in the remaining five. In two of these cases active symptoms were present.

Dementia terminal, thirteen cases. Active in three, exaggerated in four, normal in five, absent in one. The latter case was one of degenerative insanity, with prominent cord symptoms.

Monomania, eight cases. Active in six, normal in two. In two cases of paranoia the deep reflexes were active. In one there was distinct exaggeration of the knee-jerk.

Summarizing, we have sixteen cases in which the symptoms were active. In eleven of these cases the deep reflexes were active, and in four normal. In twenty-four cases the symptoms were not active. Twelve of these patients had active deep reflexes, they were normal in four, diminished in seven, and absent in one.

IRWIN H. NEFF.

ABSTRACTS.

In Reviewing a Recent Work by Mingazzini,

the Journal of Mental Science, July, 1895. The review closes as follows:

"Entering on the much debated questions that group themselves about atavism, Mingazzini seeks to harmonize opposing views by insisting that it is impossible to raise any barriers between atavism and pathology. 'An atavistic record is simply a sign showing that the evolution of an organ has not proceeded with complete and normal regularity; disease is a necessary condition for the appearance of the atavism.' A philogenetic record, he goes on to remark, has precisely the same value when it appears on the surface of the cerebral mantle, as when it appears on any other organ, so that when we are judging of the normal or abnormal character of an organism, we must seek for atavistic characters everywhere. The presence in man of a supernumerary vertebra or rib, of muscles peculiar to other vertebrates, of an enormous vermiform appendix, an external ear resembling that in the macaques or the cynocephali, a caudal appendage or a supernumerary finger, are all signs of the same value as a lacking convolution or a superficial cuneus. There is no such thing as a normal person, and one or two such signs of abnormality or of degeneration, if we prefer to call them so, have little significance. But as we proceed to the insane, the epileptics, the idiots, and criminals, we find such stigmata increase, and Mingazzini agrees with Nacke that a 'man who presents numerous signs of degeneration must always be suspected as regards his mental, nervous and moral state.' After finally insisting that we are not entitled to go farther and assert the existence of a 'criminal type' of man, the author brings to a conclusion his interesting and judicious survey of this large field."

The Gaskill Prize. A yearly prize is offered under the direction of the British Medico-Psychological Association to the candidate passing the best examination on questions especially designed for the purpose. We quote the questions given at the last examination from *Journal of Mental Science*, October, 1895:

1. Trace the course of the processes of the pyramidal cells of the cortex cerebri. Mention the pathological changes to which these cells are subject, and describe fully one such change?
2. State any evidence you are acquainted with which would lead you to believe any form of insanity or its symptoms are due to a toxic or bacterial poison. Do you know any evidence that tends to show that the secretions of insane persons are toxic in their nature?

3. Describe the morbid changes found in the peripheral nerves in general paralysis.

4. State the chief anatomical facts elucidated by the researches of Golgi and Ramon y Cajal, bearing especially on the distribution of the lateral, apical, and axis cylinder processes.

5. What disease may be mistaken for acute delirious mania? Describe treatment and post-mortem appearances in a case of the latter.

6. What diseased conditions have been described as occurring in the brains of epileptics, having especial reference to the cells of the cortex and large ganglionic cells of the motor tract? State the influence the former cells are supposed to exercise over the latter.

Notes of a Case of Dual Brain Action. By Lewis C. Bruce (*Brain*, Spring No., 1895). The author uses the above term to describe "an individual who appears to have two distinct states of consciousness, and in whom the right and left brain alternately exert a preponderating influences over the motor functions." He describes a man who had been insane for fifteen years, though but recently studied by himself, whose insanity was cyclical or circular in its variations between two forms. In one of these forms the patient was dull, had a vacant expression, was sluggish in motion, used the left hand in eating and writing, and spoke in Welch. He more or less rapidly would pass from this state, to an active, restless, destructive mood, in which he spoke English, talked readily, and was right-handed. If he tried to write with the left hand in this latter form, he produced awkwardly the so-called mirror writing, and wrote from right to left. Occasionally, the transition between these two states was so slow that for a time he would be ambidextrous, and mix the two languages.

This case, while ordinarily periodical in its cycles, presents distinctive symptoms which lead the author toward the hypothesis suggested by the title. The man in the English stage remembers nothing of any happenings in the Welch stage, is maniacal, can use right hand, and the left hand is awkward, producing mirror writing. In the Welch stage he is demented, talks little, can use the right hand only with awkwardness.

On reflection the main symptom of uncontrovertible value in this case seems the use of the hands. The circular character of the mental state, the use of two languages, the claimed lack of memory of happenings in the "spell," all seem to be approximately duplicated in any of our asylums.

Editorial.

IN THE coming numbers of this JOURNAL, for the ensuing year there will be published monthly a series of photogravures and original drawings which, when the set is complete, will furnish our readers with a complete anatomy of the central nervous system.

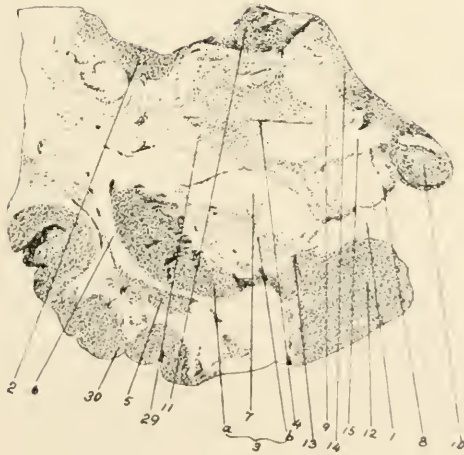
Dr. Alfred Wiener has kindly offered to prepare the sections from which these photogravures and original drawings will be made, and to mark out carefully for reference the location of the different structures as they present themselves in the various pictures. A word as to the explanation of these illustrations. There will be a schematic drawing accompanying each illustration. On this schematic drawing, lines and numbers will locate the various anatomical points of interest. These numbers will always represent the same structure in the different pictures.

It is hoped that this will be thoroughly appreciated by our readers, as a great deal of time and care have been and will be taken to present clear and distinct copies of the original specimens which are being prepared for this work.

We have no reason to doubt that a long-felt want will be met by our attempt to furnish this complete atlas of the central nervous system.



a



b

No. 1.

ANATOMY OF NERVOUS SYSTEM.

No. I.

Vertical section through internal capsule, made in the region of the corpora albicantia.

1. Optic Tract.
2. Caudate Nucleus.
3. Lenticular Nucleus.
 - a.* Putamen.
 - b.* Pallida (Lobes).
4. Optic Thalamus.
5. Claustrum.
6. External capsule.
7. Internal Capsule.
8. Crus.
9. Pillar of the Fornix.
10. Corpus Albican.
11. Ant. Tubercle (Optic Thalamus).
12. Temporo-Sphenoidal Lobe.
13. Lenticular Fillet.
14. Central Gray Matter.
15. Reflected Pillar of Fornix.
29. Stratum Zonale.
30. Island of Reil.

No. II.

Vertical section, made at the junction of the crura cerebri with the pons.

No. 4. Pulvinar of Optic Thalamus.

8. Pes Cruri.

12. Portion of Temporo-Sphenoidal Lobes.

15. External Geniculate Body.

16. Internal Geniculate Body.

17. Fillet.

18. Corpora Quadrigemina Posterior.

19. Third Nerve Nuclei.

20. Aquæductus Sylvii.

21. Fourth Nerve Nucleus.

22. Central Gray Matter.

23. Red Nucleus.

24. Raphe.

25. Substantia Nigra.

26. Transverse Pons Fibres.

27. Post. Longitudinal Fasciculus.

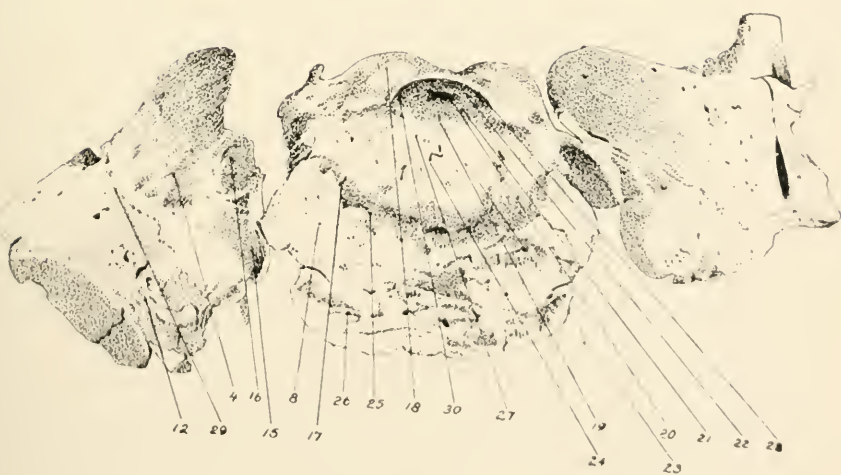
28. Deep Medullary Substance.

29. Stratum Zonale.

30. Descending Root of Fifth Nerve.



a



b

No. 2.

Periscope.

UNDER THE DIRECTION OF

ALFRED WIENER, M.D.

With the Following Collaborators:

C. BROWN, M.D., New York.	J. K. MITCHELL, M.D., Phila., Pa.
A F REEMAN, M.D., New York.	H. PATRICK, M.D., Chicago, Ill.
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PHYSIOLOGICAL.

An Orbicularis Pupillary Reaction. Gifford, (*Archives of Ophthalmology*, July, 1895).—The author has studied for several years a reflex, hitherto undescribed, which consists in “a contraction of the pupil which takes place when a forcible effort to close the lids is made.” It is best observed in subjects partially or wholly blind from disease of the brain, optic nerve, or retina, but may be demonstrated in the great majority of normal individuals, if the illumination be from the side, and sufficiently strong to allow of accurate observation. The observer holds the eyes open while the patient makes a strong effort to close them, and if the eyeball does not roll up too sharply, so as to obscure the pupil, the latter is seen to contract perceptibly, sometimes very markedly. Even when the pupil is covered, the moment it comes into view from relaxation of the orbicular contraction it is seen to be contracted, although it immediately dilates. In many persons indeed, the pupillary contraction may be seen if the tightly closed eyes are quickly opened; but this requires a quick observation. Gifford has seen this reflex in a number of cases in which all other pupillary reflexes were absent. He makes little attempt to explain its mechanism or physiological and pathological importance, but he believes it to be associated with the action of the lid part of the orbicularis only, not with that which puckers the surrounding parts. This point we consider of importance in relation to the question of the nuclear origin of the orbicularis and motor oculi, and think it might be of interest to examine for Gifford’s reflex in all facial and ocular paralyses.

PATRICK (Chicago).

CLINICAL.

Two Tabetics, Syphilitic From the Same Source.

Marie and Bernard, (*Journal des Praticiens*, Oct. 26, 1895.)—Report the following: Two friends went to Paris in 1869 and contracted syphilis the same evening, in the same way, from the same woman. Both became the subjects of locomotor ataxia, the disease first manifesting itself in both cases by visual troubles, in the one individual in 1890, in the other in 1891. In both lightning pains and ataxia made their appearance in 1895.

PATRICK (Chicago).

Head Tetanus.

L' Union Med., Sept. 25, 1895.—A case of head tetanus with fatal termination is reported from the service of Gougenheim at the Lariboisiere. On July 21, the patient in striking a horse, gave himself a slight wound with a whip lash below the internal angle of the left eye. Until the 9th of August, there were no symptoms except slight suppuration. At that time he perceived some tension of the left cheek, the wound became painful and gentle pressure caused the extrusion of the whip-cord. August 10th, apparently without any preceding rigidity, paralysis of the left side of the face appeared, and the following day trismus which, according to the report of the patient, was from the first bilateral. He entered the hospital August 13th with left facial paralysis, right facial contracture and marked trismus. The treatment consisted in the administration of large doses of chloral (four drachms per day) and morphine, but the symptoms progressed, there being first slight opisthotonos and dysphagia, spasms of the facial muscles and fever up to 103.6F., then general tetanus, aphagia, persistent opisthotonos, and loss of consciousness without delirium closed the scene six days after admission. The post-mortem findings (microscopical) were negative.

The points of interest are the obviously equine origin of the disease; the sudden appearance of facial paralysis apparently without antecedent rigidity, although, judging from recent investigations, this was probably present, but transitory; the quickly following affection of the right side, due to the almost median situation of the wound; but this affection being a rigidity and not a paralysis because of the greater distance from the point of inoculation, and hence diminished virulence of the suppositious toxine; the marked dysphagia which has given to these cases the qualification of "dysphagic" or "hydrophobic." The case followed the rule as to the benignity of head tetanus so long as it was confined to the head, and its malignancy when it invaded the trunk and extremities.

PATRICK (Chicago).

Progressive Muscular Dystrophy; Lingual Atrophy.

Bouveret, (*Lyon Med.*, Sept. 29, 1895).—Two cases occurring in mother and son. The mother, aged 42, had never been able to close the eyes perfectly, and had always slept with them partly open. At the age of 27, following a confinement, the legs, especially the right one, became very weak, but their condition remained almost stationary for about ten years when the trouble again increased, and four years later, following influenza, there was a final aggravation of her disability. Examination showed the distribution of the atrophy to be decidedly atypical, not conforming to any one of the three principal types—the upper-arm type of Erb, the thigh-pelvic type of Leyden-Moebius or the facio-scapulo humeral type of Landouzy-Déjerine, but partaking of the characters of all of them. Disturbances of sensation and of the sphincters, fibrillary twichings and muscular cramps, and reaction of degeneration were wanting. The patient had a goitre and a cystic tumor of the ovary. She had given birth to seven children, three of whom died in infancy. Of the four sons living all were well except the second.

He was 22 years old, about four feet ten inches in height and badly proportioned. From infancy he had been unable to close the eyes completely, his features were abnormally immobile, he was mentally slow and never sufficiently strong in the arms to learn a trade. He was found to present the typical myopathic facies of the facio-scapulo-humeral type, and indeed almost a perfect example of this variety of idiopathic atrophy, except that the levatores palprebrarum were weak and the tongue was involved to a marked degree. The dorsum and sides were wrinkled resembling a "fibro-mucous envelope too large for an atrophic muscular mass," and the author gives to the member the graphic appellation of "scrotal tongue." All movements of the tongue were possible but feeble. There were absolutely no symptoms indicative of a spinal affection.

These two cases of idiopathic muscular atrophy, are of interest principally as showing that the different types of this affection are not divided by hard and fast lines, and as contributing to the atypical or transition cases as reported by Bernhardt, Hoffmann, Londe, Strumpell and Brown.

PATRICK (Chicago.)

The Equivalent of Migraine.

A. Barry (*Centralblatt für innere Medizin*).—According to the conception of Möbius, migraine is a special form of hereditary degeneration, closely related to epilepsy, and the author has been seeking for the equivalents of the outbreaks. He reports the history of a case of typical migraine, in which the headaches ceased during a period of three months, and in their place severe gastric

pains appeared. At the end of this time the stomach trouble vanished, and the migraine reappeared. The author was able to exclude organic disease of the stomach, and also hysteria and neurasthenia, and he, therefore, regards the gastric pain as a migraine equivalent.

FREEMAN.

Multiple Neurotic Gangrene of the Skin.

Joseph (*Centralblatt für innere Medizin*).—Describes the case of a strong man, aged 27, who exhibited no trace of nervousness, and aside from a prolonged attack of diphtheria when a child, had never been ill. In November, 1884, he accidentally poured some concentrated sulphuric acid over the back of his left hand. The burn was treated and had not entirely healed, when in February, 1895, a dark grey spot appeared on the lower third of the left forearm, a little smaller than a silver dollar. It was not accompanied with pain, and only caused a feeling of coldness. Later, sticking pains came on, with disintegration of the involved area, and after five weeks of treatment, healing took place, with keloid formation. Since then regularly, about every six months, dry gangrene appears, always first on the left and then suddenly on the right arm. When the author first saw the case in January, 1893, new gangrenous spots had appeared the previous night, accompanied with cold and painful sensations. On the flexor surface of the left forearm was an anaesthetic spot the size of a sixpence, having a yellowish-green centre. On the middle of the right forearm was a similar spot somewhat larger than a silver dollar; both were slightly painful. Ulceration followed, and after treatment for two months with sublimate dressings, healing took place with the formation of smooth scars. Aside from the local pain the patient felt entirely well. There was no fever, no glandular swelling and no albumen in the urine. On both arms were numerous scars which rose sharply above the skin and resembled false keloid. In March, 1894, new gangrenous spots again appeared, and for the first time on an old scar. In five weeks healing took place. This case is said to be the first observed in a man. Such spontaneous gangrenes formerly only were seen in hysterical women. The author states that similar skin affections are observed in ascending neuritis. Arterial sclerosis and syringomyelia, he was able to exclude as causes, and also self-inflicted injury. The cause of this affection is to be sought for in a very labile nervous system.

In the above-mentioned patient, a circumscribed gangrene of the skin appeared again on the right forearm in November, 1894, in consequence of a cask rolling over his right middle finger, and causing only a small superficial abrasion.

FREEMAN.

THE
Journal
OF
Nervous and Mental Disease.

Original Articles.

THE SPINAL CORD IN PERNICIOUS ANÆMIA.¹

By JAMES HENDRIE LLOYD, AM., M.D.

Neurologist to the Philadelphia Hospital; Physician to the Methodist Episcopal Hospital, and to the Home for Crippled Children.

THE recognition of the involvement of the spinal cord in pernicious anæmia is apparently quite recent. Lichtheim, in 1887, was one of the earliest observers, if not the earliest, to write on this subject. According to Bowman,² he laid stress upon the special character of the changes found in the cord, as distinguishing these cases from tabes. This distinction is apparently being lost sight of by some writers, for it is becoming rather the fashion to speak of pernicious anæmia being complicated with locomotor ataxia.

It should be borne in mind that cases of pernicious anæmia with involvement of the spinal cord are neither clinically nor anatomically identical with locomotor ataxia. It is true that some of them resemble tabes more than others, but even those that resemble tabes most are not identical with it. On the other hand, some of these cases are quite distinct from tabes, and have been placed by some writers in a separate class as presenting a type somewhat similar to disseminated sclerosis.

Minnich,³ in 1892, published a paper based upon six

¹ This paper appears also in the "Philadelphia Hospital Reports," vol. iii, 1896.

² *Brain*, Summer Number, 1894, p. 198.

³ *Zeitschrift für klin. Med.*, vol. xxi., 1892.

cases, and illustrated with diagrams of the changes in the cord. In his paper it is quite evident that these cases varied considerably in type. The symptoms in some cases resembled tabes; in some, disseminated sclerosis. Progressive weakness was marked in all cases, whereas ataxia was seen in only one-half of the number. Loss of the knee-jerks was seen in only two cases, in only one of which was there the Argyll-Robertson pupil. In only two cases were there subjective sensory changes, while anæsthesia, though frequently observed, was not seen in all. Loss of control of the sphincters was seen in one-half of these cases toward the end. In these six cases of Minnich's the anatomical findings, as shown in the diagrams, varied as well as the clinical phenomena; they all showed a wonderful uniformity, however, in the changes found in the posterior columns. These changes were found in Goll's columns, extending across into Burdach's columns, but invariably leaving a line of normal white tissue along the edge of the posterior horn. In most cases, also, the degeneration did not extend forward to the gray commissure. The root-zone almost always escaped. The variations in Minnich's cases were in the areas involved; the posterior columns were invariably involved, as just described, but in some cases the process stopped, or almost stopped there, while in others the type was rather that of a more disseminated process, involving (especially in Case V.) the direct and crossed pyramidal tracts. There was no shrinking in the posterior columns, as is seen in tabes.

Other cases published since Minnich's—notably, Bowman's and Burr's—have adhered to this peculiar type of posterior sclerosis, the root-zone and Lissauer's tract escaping. Bowman's case, however, presented also degeneration of the crossed and direct pyramidal tracts.

Bowman describes the earlier process as a swelling of the medullary sheath (to three or four times the diameter of a healthy fibre). The swollen sheath does not take the Weigert stain readily. The axis-cylinder appears normal. This description of Bowman's accords closely with what I have observed in a recent case, before I had read his paper. I have described and depicted these changes in the following pages.

The history of the case is as follows:

S. C., thirty-seven years, white, male, machinist, single, born in Ohio.



Family History.—Father suffered much from malaria, and died of apoplexy at sixty-four years of age. Mother and one sister died from a chronic diarrhœa similar to the one that the patient has at present. One sister died of some abdominal tumor complicated with diabetes mellitus.

Personal History.—The patient in boyhood suffered from malaria in his home on the Ohio river, but he has never had a recurrence since he moved to Philadelphia twenty years ago. In July, 1893, he had what he describes as a severe attack of gastro-enteritis, from which he never completely recovered, the diarrhœa persisting until his admission into the hospital. He has had typhoid fever twice. He had "inflammation of the bowels"⁴ when nineteen years old. He has been a hard drinker, and gives a history of syphilis of fifteen years' standing.

He is a machinist, but he gives no history of exposure to lead of any kind. For the past two years he has been unable to work on account of increasing weakness. He has consulted many physicians and attended dispensaries without relief.

Throughout this period he has experienced cold sensations running up and down his legs, also "prickings" in the same regions, and a feeling as if he were "walking on cotton." He has had, he says, "loss of power" in his legs, but he does not give any history of ataxia in his gait; he has always moved as well in the dark as in the light. He has had girdle sensations about the abdomen. There have never been any subjective eye-symptoms, nor involvement of the rectum or bladder.

On the patient's admission, May 1, 1894, it was noted that the knee-jerks were normal. Ankle-clonus was absent. Sensation was normal. The man was very weak and could not walk straight. At this time he was already markedly anæmic. The lips were colorless, the skin a peculiar lemon-white hue, and the fat of the body fairly well preserved. After his admission it was noted that he was subject to attacks of suddenly occurring localized œdema, affecting first his legs and ankles, and then suddenly leaving them and affecting his face.

The patient complained of pain in his abdomen, centering around the umbilicus, worse after a stool.

⁴ Appendicitis? The patient had marks of wet cups over the lower abdominal walls.

The diarrhœa was rather irregular; at times profuse, with a large number of liquid stools in succession, followed by an interval of from six hours to several days, during which the bowels were not disturbed. He occasionally passed a little blood in his stools. He had no hemorrhoids nor history of them. He never coughed nor had any subjective pulmonary symptoms.

Examination, June 16, 1894.—The patient's skin is of a lemon yellow color. Subcutaneous fat is fairly well preserved, and general nutrition is good. The conjunctivæ are very pale and of a pearly-yellow white, and are thrown into folds when the eyes are rolled, as the finger is pressed against them. Knee-jerks are about normal. Ankle-clonus is absent. The gait is that of a very weak person, but it is not truly ataxic. The pupils are equal; they respond to light and accommodation. Speech is normal. The tests for sensation are not satisfactory, as the man apparently cannot fix his attention. Sensation, however, is apparently not markedly impaired. The mental processes seem to be dull and confused, and to be growing worse, but are probably not disturbed more than can be explained by the patient's anæmic condition.

Chest.—Apex beat, in the fifth interspace, one-half inch inside the nipple line, is slightly diffused. Cardiac dullness is increased to the right, extending to the right border of the sternum. At the apex a rough systolic murmur is heard transmitted to the axilla. In the tricuspid area a softer blowing murmur is heard over the xyphoid cartilage. No murmurs are detected in the aortic or pulmonary areas. There is marked pulsation in the suprasternal notch and in the vessels of the neck. Loud venous hums are heard on both sides over the jugulars. The pulse is rapid (100-115), rather full, soft and easily compressible. The respiratory sounds are rather weak, but nothing abnormal is detected in the lungs.

Abdomen.—The liver is about normal in size. The spleen is somewhat, but not markedly, enlarged. At present the patient is having from four to six stools in the twenty four hours, watery and light yellow. Under the microscope a few pus-cells, a very few cells resembling red blood cells, and granular matter, are found in the stools. Rectal examination gives negative results.

Blood.—Red cells=1,280,000. Hæmoglobin, 23 per

cent. Macrocytes, microcytes, and many poikilocytes, with some nucleated red cells, are shown. (See Fig. 1.)

Urine.—Amber in color: specific gravity, 1020; acid. Chemical and microscopical examinations reveal nothing abnormal.

June 23, 1894.—The blood was examined by Dr. Daland to-day. He reported as follows: "The blood as it emerged from the puncture was pink in color. Its consistency and coagulability were lessened. The hæmatokrit showed 16 per cent. (800,000 to c.mm.) of red cells, and slight excess of white cells. The red cells were of

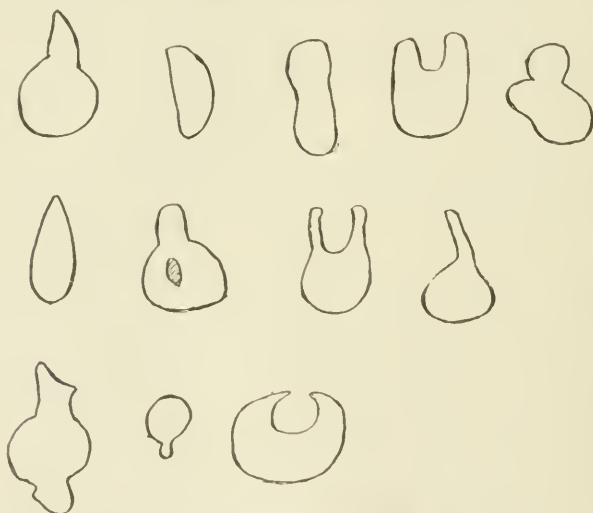


FIG. 1.—Forms of Poikilocytes noted in the Blood.

good color. Many poikilocytes with characteristic pear and flask shapes were seen. The leukocytes seemed a trifle increased in number, perhaps 12,000 to 15,000. The smaller-sized leukocytes predominated in number; many were about the same size as the red cells, and rarely was a large white cell visible. The white cells seemed filled with coarsely granular material. Some were irregular in shape, and occasionally one was seen to throw out pseudopods." Count of white cells (3040 to c.mm.).

June 24.—An examination of the eyes was made to-day by Dr. de Schweinitz, who found the vessels of

both retinas diminished in size and the retinas the seats of many hemorrhages.

July 1.—Red cells=648,000 to c.mm.

July 2.—Spots of extravasated blood have appeared at the base of the sacrum. The patient is much weaker. Cerebral anæmia is very marked. Carphologia has been present at intervals for the past week.

July 3.—Death at 6 A. M.

Post-Mortem Notes. July 4, 1894, thirty hours after death.—Body of fairly nourished man. Skin of lemon-yellow color. Subcutaneous fat is well preserved and of an orange color. It measures three-quarters of an inch in thickness in the abdominal wall. Tissues seem practically bloodless, and the muscles are highly colored. No œdema of tissues is noted. The marrow of the laminae of the vertebræ is soft, but not fluid; it is dark-red in color. The abdominal cavity does not contain fluid.

The appendix is adherent at the tip, as if it might have been the seat of an old inflammation, but does not show signs of any recent disturbance.

The liver seems slightly diminished in size, extending barely to the costal margin, is yellow on section, and appears fatty.

The spleen measures 6x4x3 inches. Capsule is somewhat thickened and wrinkled. There are four notches on the edge of the organ, giving it a serrated appearance. On section the tissue is dark and soft, and the pulp is rather easily squeezed out.

The kidneys, on section, appear to be fatty. The cortex is about the usual thickness.

The pancreas is normal.

Intestines.—No enlargement of the mesenteric glands is notable. No marks of ulcers; no tubercles nor tumor.

DESCRIPTION OF SECTIONS.—*Stains.*—(1) Carminate of ammonia; (2) Hæmatoxylin; (3) Methyl-green; (4) Weigert; (5) Biondi-Heidenhein.⁵

POSTERIOR COLUMNS.—*Dorsal Region.*—The degeneration does not occupy the whole of the posterior columns. In the dorsal region the area of degeneration is about midway between the posterior median septum on either side, and the posterior horn of the same side; hence it involves part of each postero-median and postero-external column. (Columns of Goll and Burdach.)

⁵ Cervical region not removed with cord.

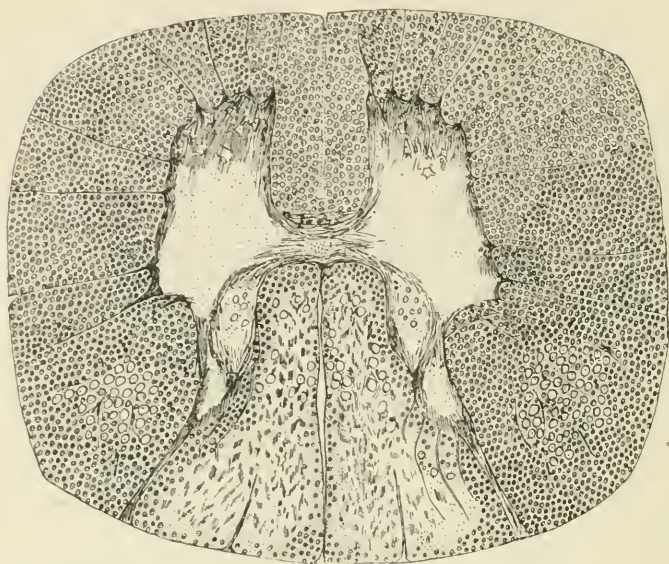


FIG. 2.—The Spinal Cord in Pernicious Anæmia. Dorsal Region.

This area does not extend forward quite to the posterior gray commissure, the normal white matter with the cut ends of the nerve-fibres being conspicuous around the anterior edge of the degenerated area. Around the post-median septum the degeneration is not so dense as at a slight distance away from it on either side. At the point of deepest degeneration no normal tissue can be traced; *i. e.*, no nerve-fibres are visible. Hence the area of deepest degeneration may be described as spread around the division line between the columns of Goll and Burdach on either side, and not extending quite to the posterior commissure in front, nor quite to the periphery of the cord behind. The posterior root-zone is not seriously involved in this cord—a fact which accords with the clinical findings of no ataxia and of preserved knee jerks. Still these trunks do not escape entirely, the most median ones being involved toward the periphery, before they emerge from the cord.

Lumbar Region.—Almost, if not quite, normal in the posterior columns.

LATERAL COLUMNS.—The lateral columns have been studied very carefully. In the dorsal region, as shown

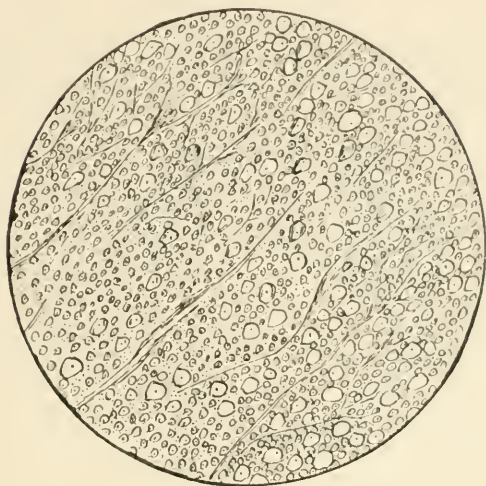


FIG. 3.—The Spinal Cord in Pernicious Anæmia. From the Lateral Columns, showing swollen Nerve-fibres.

especially in the section stained with methyl-green, it is evident that some change has occurred in them. This is shown (1) by an increase in the neuroglia, and (2) by great distension of some of the nerve-tubules. In some of these distended tubules the axis-cylinder can still be seen; in others, not. This distension of the nerve-tubules, it seems to me, is of great significance. It probably shows an early stage of degeneration, in which some irritant is acting upon, or even infiltrating into, the tissues. In the first stage the tubule swells; then the axis cylinder breaks and finally shrivels; and, finally, the neuroglia, which has been proliferating all the while, begins to contract and blot or squeeze out the true nerve tissue. In this cord the early stage is probably seen, in which the most conspicuous feature is the swelling of the nerve-tubules. In the lumbar region, where, of course, the lateral columns are not so large as in the dorsal cord, these columns are not nearly so markedly involved. These swollen tubules may also be seen in some of the degenerated tissue in the posterior columns.

Deiter's cells show with unusual clearness in the posterior columns in some regions. They can be picked out especially well with the carmine stains.

The membranes are not distinctly involved in this cord.

The anterior horns, with their multipolar cells, are normal in both dorsal and lumbar region. The cells are conspicuously free from disease in all the sections.

Nerve-trunks.—These cannot be said to be markedly affected so far as the shape and contour, and the amount of interstitial tissue is concerned. With the Weigert stain, however, the fibres do not stain evenly, and this may possibly be an indication of commencing change in them.

Concluding Remarks.—The anatomical changes, just depicted, explain why these cases of pernicious anæmia do not present the identical symptoms of locomotor ataxia. As in Minnich's and in Bowman's cases, already referred to, the posterior root-zones are but partially involved. It cannot be said, however, that they escaped entirely in my case. It is possible that the degree of their involvement varies slightly in different cases, and this variation may explain the absence or presence of such tabetic symptoms as the loss of the knee-jerks, the ataxia and the subjective sensory symptoms. In some cases, in which the disease-process is more disseminated, and the lateral tracts involved, the patients present the clinical picture of ataxic paraplegia. It is probable that this would have been the case with my patient had he lived longer, as the lateral tracts were becoming distinctly involved, and must soon have become sclerosed.

It seems almost useless in a purely clinical and anatomical study to speculate about the essential cause of pernicious anæmia and the relation of this cause to the changes in the spinal cord. Other writers, who have essayed to do this, have not succeeded in throwing any light upon this important subject. It is a purely pathological question, and cannot be solved apparently by ordinary bedside methods or by post-mortem histological studies. It may be permissible here, however, to call attention to a few points and to a few analogies, which may assist the future investigator.

First, it is to be noted that this patient's range of temperature is strongly indicative, according to received opinions, of some irritant or toxic substance circulating in the blood. It was continuously high for weeks before death; for at least two weeks before the end it did not

come down to the normal once. It rose steadily toward the end, registering once almost as high as 105°. When it is considered that the autopsy revealed nothing in any organ or tissue that could account for such continuous high range of temperature, the conclusion seems almost forced that it could be explained only by an abnormal blood state produced by some toxine.

Second, the character of the tissue-change in the spinal cord is strongly suggestive of the action of a poison. The change begins apparently in the parenchyma; thus, as we have seen, the myeline sheath becomes enormously swollen, and this apparently before the neuroglia begins to proliferate markedly. It may be too much to assume positively that this parenchymatous change is always the result of the action of a toxic substance, yet it is certainly in harmony with what we know already of the action of some such substances. In this connection, it will be interesting to note in the future whether the spinal cord is ever involved in a similar way in the ordinary secondary anæmias.

Finally, the persistent diarrhœa, sometimes with hemorrhage, may have some special significance in this case. Especial care was observed at the autopsy in examining the gastro-intestinal tract, but nothing was observed that could, in any way, account for the symptom.

Acknowledgments are due to Dr. J. Dutton Steele, resident physician, for clinical work done in this case.

LESIONS OF THE CORTICAL TISSUES INDUCED BY ACUTE EXPERIMENTAL ALCOHOLIC POISONING.¹

By HENRY J. BERKLEY, M.D.,

Baltimore.

THE only literature I have been able to find on the subject of experimental changes in acute alcoholic poisoning is in the incomplete article by Dehio (*Centralblatt f. Nervenheilkunde und Psychiatric*, March, 1895). He rapidly poisoned guinea-pigs with considerable quantities of the drug, the largest amount reaching 25 c.c. of 96% alcohol. Death followed in the most acute case in one hour, in the slowest in thirty-four hours. The method of preparing the microscopic sections was by the Nissl formula. The author confines his research on the cellular changes, entirely to the Purkinje cells, and does not consider the vessels or their contents.

In the cases that died from the poisoning within a very short time, no pathological lesions were found, but in those of longer duration he discovers changes in the chromatin structures of the cell, and greater receptivity of the protoplasm to the stain than is usual, but the nucleus and nucleolus remain unchanged. These very slight lesions of the nerve cell are debatable on the ground that it is impossible with Nissl's method to produce constantly the same degree of staining, also that a definite alteration in the nucleus of a cell is of more positive value than greater or smaller absorption of a dye by the cellular substance. In view of the results obtained from the present research, it is unfortunate that Dehio fails to note whether there were lesions of the blood-vessels' sheaths, or of their contents, for as we already are aware, the soluble poison ricin, is capable of

¹ Read before the Philadelphia Neurological Society, January 27, 1895.

producing decided degenerations of the elements of the vascular walls in much shorter time than thirty-four hours.

The three rabbits, whose brains were sent me by Dr. Friedenwald for the purposes of this study, were poisoned by a somewhat different procedure than in the foregoing work, namely, by slowly increasing doses of the poison, until the animal had established a certain tolerance, and then increasing it to a considerable amount, which was maintained until the animal died, a method of treatment that does not differ widely from the course pursued by a man on a continual spree. While the doses were large they can hardly be said to greatly exceed the amount taken by many men while on a debauch, and from which they eventually may recover, perhaps after an attack of delirium tremens, or some other form of alcoholic psychosis. Thus a man weighing 150 pounds, would take in the same proportion fifty times the amount of alcohol as a three-pound rabbit, and accordingly, would obtain a daily allowance of 750 c.c. absolute alcohol, equal to about 1,500 c.c. ordinary whiskey, with the difference that the ethyl alcohol is perhaps less deleterious to the tissues.

I insert here a condensed table of the rabbit histories, which shows some interesting facts. The loss of weight in the three animals is enormous. The first case lost approximately three-fifths of its weight, the second seven-twelfths, the third five-ninths; an enormous diminution, considering that the animals were fed and taken care of in the best possible manner, without which they could not live. Another point of note is that the resistance of the animals to the poison is not entirely proportionate to their weight, for the heaviest one received only a total of 165 c.c. of alcohol, and the next heaviest, weighing thirty grammes less, received no less than 260 c.c., nearly one hundred cubic centimetres more before the exitus.

Death occurred in all the cases approximately in three weeks. The principal gross anatomical lesion found at the autopsy was a fatty condition of the heart muscle, and this seems to be present in all animals subjected to continued administration of alcohol, in which sufficient time, between the doses is not allowed for complete elimination.

TABLE OF CONDENSED RABBIT HISTORIES.

ACUTE ALCOHOL SERIES.

No. in Series.	Age.	Weight at beginning of Experiment.	Began to feed 1895.	Quantity fed daily.	Died.	Weight at Death.	Cause of Death.	Gross Anatomical Lesions.	Total Amount of Alcohol fed in three weeks.
E	Adult.	1220 gr.	Sept. 27	5 to 15 c. c.	Oct. 21, 1895	780 gr.	Rapid emaciation. Convulsions.	Fatty Heart	190 c. c.
F	"	1500 gr.	Sept. 30	"	Oct. 21	840 gr.	Rapid emaciation.	"	145 c. c.
G	"	1490 gr.	Oct. 2	"	Oct. 24	920 gr.	Convulsions.	"	260 c. c.

THE MICROSCOPIC EXAMINATION OF THE NERVOUS ELEMENTS AND NEUROGLIA.

The tissues of the brains were hardened in Muller's fluid and absolute alcohol. The staining was accomplished by the Nissl and silver phospho-molybdate methods.

With the aniline stain, alterations are not very definite, beyond a few cells located in the immediate neighborhood of clogged vessels. Here the cellular protoplasm, refuses, under the method, to show its stichochromic structure, and appears uniformly and finely granular, and besides does not take up as much of the dye as other, more normal, cells. In these individual cells there is beginning swelling of the nucleoli, which fill out more than natural of the nuclear ring, and appear slightly roughened. The nuclear dust has not aggregated into clumps, and becomes adherent to the nucleolus, as in some of the more chronic cases seen in the first study.

In the wide areas where the disturbance of the circulation has been less well defined, changes in the protoplasm and nuclei of the cells are not very positive, and show almost entirely, in that the stichochrome particles of the protoplasm are seen somewhat less clearly than normal, and the protoplasm, as an entirety, shows greater receptivity to the aniline stain than is customarily seen in control slides, or better, will not bleach out with the same facility that it ordinarily does. Nucleus and nu-

cleolus appear to be strictly natural. The striated arrangement of the thicker dendrites of the neuron, near the cell body, is always seen.

The silver phospho-molybdate method shows much more positive changes than the Nissl, but these are confined entirely to the dendritic stems beyond the point where they become tinged by the aniline stain. These alterations in the dendrons are not seen everywhere in a section, but at comparatively frequent intervals, corresponding probably to the areas of greatest damage to the circulatory apparatus, for it should be remembered that the smaller vessels are no longer distinctly seen in the silver slides.

The departures from the normal in the dendrons have two forms, swelling of the branches, and apparent atrophy. Dendrons in clusters, in all layers of the cortex, are seen to have irregular tumefactions in the course of their stems, extending over considerable distances in their long diameter, which suddenly decrease to the natural calibre of the stem. The majority of the gemmulae are lost over the extent of these tumefactions, though here and there the buds are found projecting from the sides of the enlargement. Even the branches that have little of the tumefaction, have considerable diminution of the lateral buds. The gemmulae still retained, have lost some of their chief characteristics, the rounded knobs at their terminations are lost, and they show only as even projections from the sides of the protoplasm of the stem of the dendrite. Often, they have a larger than usual size from insertion to termination, which would seem to indicate that they, as a portion of the protoplasm of the dendron, are swollen.

Quite as frequent as tumefaction of the dendrites is a process of apparent atrophy, with almost complete stripping off of the gemmulae from the stems. This diminution of the calibre of the dendrite may be only apparent, and caused solely by the shedding of the side projections, thereby producing an apparent reduction of the calibre of the stem, but varicosities are entirely absent from the dendrites of these neurons.

As far as can be determined, the axons and collaterals are not implicated in the process of degeneration of the dendrites, also no involvement of the cellular body can be found. Some of the corpora, it is true, stained incompletely, but whether this is owing to an imperfect impregnation with the silver salt, or to damage to the

protoplasm from the poison and defective circulation, could not be determined.

The dendrons of the Purkinje cells seem to have escaped to a large extent the changes so apparent in the cortex of the cerebrum. Whether this is due to the differences in the circulation of the several regions I am unable to say.

NEUROGLIA.

The number of fixed tissues nuclei stained in the Nissl preparations does not indicate an increase in the numbers of these elements throughout the cortex. In the silver slides the support elements proper, so far as the stain shows, present no variation from the control, but on the other hand the vascular neuroglia gives indication that alterations are taking place within its structures, and show considerable variations from normal preparations. The cell bodies are larger, the protoplasm extensions are thick and knotty, and the arms extending toward neighboring vessels are more prominent than in the control. Altogether the impression is given that these cells are somewhat swollen.

CHANGES IN THE BLOOD-VESSELS SEEN WITH NUCLEAR STAINS.

Arteries and Intermediary Vessels.—The nuclei of the endothelial cells are everywhere swollen, and in places are fragmented, and receive either too little, or more rarely, too much of the dye. The cell substance is also distinctly undergoing retrogressive alterations. The cells of the intermediary vessels look as if they had been subjected to severe strain, as their even contours are distorted, and have many irregular bulges in their outlines.

The change in the muscularis of the arteries is equally interesting. Nuclei are now and then absent from areas of the median wall of the vessel, and in those that remain certain abnormalities are apparent; one-half of a nucleus being occasionally unstained, and presenting the appearance of a vacuole, while in the other portion the chromatin particles take the dye fairly well, and the karyoplasm also receives a portion of the stain. The nuclear membrane surrounding the entire nucleus is distinct and stained.

But it is in the substance of the muscular protoplasm that the lesions are most apparent, and show that the

cells are undergoing a retrogressive process. They no longer have their substance deeply stained, but it is turbid, even hyaline in appearance. The protoplasm, too, is considerably swollen, and its receptive quality to the dye is no longer good, the Virchow-Robin lymph space is entirely obliterated, and in those portions where the tumefaction is most pronounced, there is also almost complete obliteration of the His lymph space, the outer lamina of the vessel being pressed closely against the limiting membrane of the perivascular sheath.

Changes in the adventitia are not so distinct as in the two inner coats, though in places it holds considerable numbers of leucocytes. Some are found lying packed between the adventitia and the outer wall of the lymph space. These elements are swollen and necrotic.

The contents of the perivascular spaces, where the degree of compression is insufficient to obliterate them, is instructive. There are large numbers of leucocytes in various stages of degeneration, and besides there is frequently a number of large protoplasmic bodies, several times the size of a polynuclear leucocyte, very granular, and without nucleus, that probably are formed from the remains of partially broken up lymphoid corpuscles, that have aggregated into crescentic or oval forms. Besides these bodies there is a quantity of detritus, finely granular in character, not sufficient to cause without the aid of the lymphoid cells, any blocking of the nutrient currents. Osmic acid produces a slight blackening of the degenerating white corpuscles, also of the detritus within the spaces.

The capillaries, like the intermediary vessels are tortuous and twisted, their nuclei show changes similar to those in the larger vessels, the cells have departures from the normal in staining, and here and there in the lumen are plugs of white blood corpuscles, which, from their closely packed appearance, must have entirely stopped the circulation of the blood in the vessels before death. The lumen beyond the plugs is entirely empty.

Veins.—Changes in the coats of these vessels are similar to those in the arterial system, but aggregations of dying polynuclear corpuscles are more frequent, and are by far the most striking feature both of their contents and surroundings.

These aggregations, which may vary from three or four, to a dozen or more, are located both within and

without the lumen of the vessel (especially the smaller ones). Within the lumen are collections of white corpuscles filling the interior, and numbers are seen penetrating the walls. So numerous are the collections in the peri-venous spaces that the whole cavity is occasionally filled, and backward pressure from the plugs and compression of the vessel from the outside has attained such a height, that in a number of instances the vessel's walls have ruptured, and red corpuscles are intermingled with the white and fill the space completely. In one instance the site of the rupture was located in the section. All the leucocytes, within and without the vessels, show more or less evidence of degeneration, in some extending to erosion and disintegration of the cells.

The individual arteries, particularly the medium sized ones, are quite differently affected by the morbid process, some showing lesions of a character much more advanced than others. This would appear to depend largely upon the numbers of lymphoidal plugs, both in the smallest arteries and capillaries, for where they are thickly scattered, there the amount of arterial degeneration is greatest, particularly the lesions of the muscularis. It would thus appear that at some period antecedating the death of the animals, that collections of leucocytes formed in the smaller vessels and veins, and a slowly increasing backward pressure upon the arteries began, not sufficient, it is true, to occasion complete stasis, but enough to create an unusual pressure upon them, and this pressure in combination with the poisonous effects of the alcohol carried with the nutrient fluids, caused degeneration of the cellular elements forming the blood vessel's walls, the stress of the action falling upon the inner coats of the arteries.

This severely increased pressure is probably only an exaggeration of what ordinarily follows the administration of a moderate amount of alcohol to an animal. There soon follows the ingestion, a dilatation of all the arteries of the body from the paralyzing action of the drug on the vaso-constrictor nerves, and this endures a variable time, according to the quantity of alcohol taken. But the apparent fact that the gray substance of the cerebrum has a different innervation for its arteries than other portions of the body, becomes in this instance, a factor of great importance. Vascular nerves may be found without trouble or difficulty in muscles,

glands, etc., by the silver and other stains, but in the substance of the encephalon they are never to be seen with similar staining methods; hence it is fairly reasonable to suppose that they are not present in this location, and that some other controlling mechanism takes their place. I have most carefully looked for them in many brains, both human and of the lower animals, but have never seen the slightest traces of their presence within the nervous structures. They are to be readily found in the soft meninges of the brain and in the choroid plexuses, but nowhere within the proper substance of the cerebrum. Tuke and Andriezen, who have made researches in the same field, have also failed to find them.

The mechanism controlling the cortical arteries, is therefore, presumably, different from that in other portions of the body, and the muscular cells are less directly under the influence of nerve control. What is the result when we have a stimulant administered? The muscular cells under the influence of the direct action of the poison, and free from any power to urge them to contract after the immediate effect of the toxic substance has passed, remain for a long time inert, the congestion of the cerebral tissues is long continued, larger amounts of poisoned blood pass through the brain, and incidentally a greater proportion of alcohol than to other tissues, the deteriorated serum is transuded in increased quantities, it is carried into the lymph spaces surrounding the cerebral cells, their structures are bathed in the diluted alcohol, and their activity is dulled by the narcotic, weakened as it is by the serous fluid, inertia and torpor, of the functional activities of the cells, is the result, and it is only after the long continued elimination of the poison from the system that they resume their normal functions.

If the quantity of the poison to which the tissues are subjected is very considerable, and continued from day to day, and the emunctories become clogged for a long time, the damage to the vascular wall is proportionately greater. Judging from the present cases, the damage may proceed to necrotic changes in the endothelial and muscular cells; leucocytes formed in other portions of the body accumulate in the cerebral vessels, from the increased amount of blood brought by the arteries not being carried off promptly by the venous system, therefore, we have a constant accumulation of these corpus-

cular elements, terminating finally in blocking of the capillaries and smaller veins, diapedesis, choking up of the perivascular lymphatic channels, finally clogging of the lymph flow, and eventual damage both to the walls of the arteries by backward pressure acting on a tissue already prone to undergo degenerative changes from the deleterious effects of a poisonous drug, and to the veins from abundant extravasations and transudations of the corpuscular cells.

In conclusion, the large dependence of the lesions of the nerve elements upon the vascular is very readily demonstrated in the Nissl slides by all the alterations of importance being in the neighborhood of damaged vessels, while those supplied by a more steady current of nutrient fluid show only uncertain departures from the normal in their chromatin. It is hardly necessary to add that these latter lesions, though slight, are but the precursors of deeper degenerations of the protoplasm, which eventually show in the nuclear alterations of the more chronic cases. It would appear as an interpretation of the significance of the silver preparations that considerable destruction may take place in the dendritic stems from the combined effects of the alcohol and the damage to the nutrient supply, and that these lesions may be present in the advanced degree, before any implication of the corpus with its inner structures, is discoverable.

The lesions of the blood-vessels and their contents are pre-eminently the most important facts established by this study. We have in some measure already advanced the theory that changes in the constituent elements of the blood are among the first alterations produced by the poisonous effects of alcohol on the blood-forming organs, in other words alcohol has a decidedly disturbing influence on the blood formation. This is in conformity with what is seen in the clinic, and may at some future time form the basis of an interesting blood investigation. The exceeding abundance of the polynuclear leucocytes in and around the cerebral vessels of the rabbits show that there is most probably excessive production of these elements, but we know nothing of the numbers of the red corpuscles, though in all likelihood, there is the same diminution as in so many other anaemic states.

The formation of the many thrombotic plugs of lymphoidal elements is very remarkable and interest-

ing, as are also the numerous transudations of these corpuscles through the vascular walls, indeed so numerous were they in some instances that they compressed the sheaths of the small intermediary vessels and practically closed them.

The study has shown what has never before been demonstrated, that poisoning with alcohol in considerable doses, continued over a moderate time, will produce decided and ascertainable lesions of the nutrient structures and nervous elements of the cerebrum, very similar in character to the pathological lesions produced by other more virulent soluble poisons. One point should be borne in mind between this study and a similar one upon the human alcoholic brain, that man has through long generations been accustomed to the use, or abuse of alcohol, in some form, and has established a certain degree of tolerance to the drug, and therefore the poisonous effects will be less pronounced than in animals that have established no hereditary tolerance.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, February 4, 1896.

EDWARD D. FISHER, M.D., President.

SCLERODERMA.

Dr. LEONARD WEBER reported a case of scleroderma, with the following history: Mrs. C——, a farmer's wife, of German parentage, was first seen October 25, 1894. She was of medium height, quite stout, of pale and sallow complexion, hair of scanty growth. She was intelligent, and physically able. There was no hereditary or acquired taint. She had had five children and one miscarriage. During the thirteen years of married life she had had two severe uterine hemorrhages, one after a labor, and the other after a miscarriage. Three years ago she noticed that the right arm and side of the neck were becoming stiff and hard in patches. Gradually "strings" of cicatricial-like tissue developed beneath the cutis of the upper arm and wrist. There had been no contractures, and these strings had developed in the first year and one-half of the affection. The sclerosis extended a little to the left of the median line. There was a small sclerotic patch on the chin and in the lower lip. The sense of touch, and the feeling of pain and the muscular action were apparently normal. The surface temperature of the sclerosed area was about one degree lower than that on the other side. There was an effusion of fluid in the pre patellar bursa, associated with some tenderness. The right knee was also tender, but showed no effusion. She also complained of rheumatoid pains in the lower extremities and muscles, but not specially distributed along the nerve trunks. The tendon reflexes were normal. Her appetite was good, and for several months previously she had had slight looseness of the bowels. The urine had a specific gravity of 1014, but contained no albumen or sugar. The

treatment was directed first to improving the general condition, giving quinine, sodium salicylate, sodium bicarbonate, and small doses of morphia to check the diarrhoea. After this she was given increasing doses of Fowler's solution, but there was no improvement in the scleroderma. On January 25, 1895, treatment was begun with the English thyroid tablets, giving five grains, three times a day. All other treatment was suspended except the use of elixir of Calisaya. When seen on April 2, after having taken one hundred of the tablets, she was very much improved; the cicatricial strings and the patches on the lip and chin had almost entirely disappeared. When seen again, October 3, 1895, she had taken 250 tablets, stopping for two weeks after each hundred tablets.

The improvement had been steady and marked. The speaker said he was disappointed that the patient had not come this evening, as had been expected she would do. Neurologists were inclined to look upon scleroderma as a disease of tropho-neurotic origin, and he had nothing new to add regarding the etiology or pathology of the disease. All that he wished to say was that when last seen this woman was practically cured.

Dr. B. SACHS said that he was reminded of a patient who had come under his notice about three years ago—a widow of about forty-five years. She had had extensive sclerodermatous patches for a number of years previously. When first seen by him, a course of massage and galvanic treatment had been adopted, but only very trivial improvement had been observed. She was very slow in all her movements, and was unable even to pout her lips. Her face presented the appearance of one with double facial hemiatrophy. She also had very abundant deposits of yellow pigment in the hands, particularly in the spaces between the knuckles. In January, 1895, she was placed on the thyroid treatment, receiving two to five grains of the pulverized thyroid gland, three times a day. She did not return, as directed, after a week, but instead remained away for three weeks. At this time she was so greatly emaciated that he had since then been led to employ the thyroid as an anti-fat remedy before he had read anything about it in the German journals. But aside from this emaciation, the scleroderma had undergone a most remarkable change for the better, and the spots of pigment had disappeared.

When seen last, some months ago, she appeared to be rid of her troubles. The question whether or not scleroderma was a thyroid disease, he was not at present willing to discuss. He was fully convinced that the scleroderma was not cured by the thyroid; it had been necessary to keep his patient on about two grains a day of the thyroid.

Dr. PEARCE BAILEY referred to a case of typical scleroderma, which had lasted for five or six years, and had resulted in immobilization of the elbow and the knee. He had given her Parke, Davis & Co.'s thyroid extract, five grains, three times a day for a month or two, but without any appreciable improvement.

Dr. WEBER, in closing the discussion, said that there had been very little loss in weight in his patient during the thyroid treatment—about fifteen pounds after having taken the first one hundred tablets. When last seen he had not noticed any great loss of flesh. The disease was very chronic, and he feared there would be a relapse.

SYMPATHETIC NERVE SYMPTOMS, WITH ULNAR PARALYSIS FOLLOWING DIPHThERIA.

Dr. B. SACHS presented a girl of fourteen years, who still exhibited the remnants of a poliomyelitis of the right upper extremity, which came on when she was about eighteen months old. It would be noticed, he said, that the atrophy of the arm was extreme. In March, 1895, this girl had had diphtheria, and after this had developed an atrophic paralysis of the left upper extremity, chiefly of the muscles of the hand, and more particularly of the interossei muscles. This condition was associated with a narrowing of the palpebral fissure and of the pupil on the left side, and it was for this reason that he presented the case. There could be no doubt that ever since the beginning of the poliomyelitis, the left side had been entirely normal up to the attack of diphtheria.

Examination had shown that there was a diminution of all the forms of sensation in the ulnar distribution on the left side. The condition of the hand might possibly be due to a poliomyelitis, but owing to the presence of sensory disturbances, and the very acute onset of the trouble after the diphtheria, this could be safely excluded. The diagnosis, therefore, was a peripheral neuritis coming on after diphtheria. The curious point was the association of the sympathetic nerve symptom with this peripheral neuritis. The only way he could account for it was by supposing that the affection must have been located near the issuance of the roots of the spinal cord, for in that part there are communicating branches between the roots and the sympathetic nerve system.

Dr. C. A. HERTER said he was not sure that the possibility of the cord being involved at the level of the cilio-spinal centre could be excluded. The narrowing of the lid and the contraction of the pupil on that side would suggest very strongly that either the cord was involved, or the roots were involved close to the cord. He had never seen that symptom in a peripheral lesion, which without any doubt, could be said to be strictly limited to the peripheral nerves. He had seen this ocular symptom several times in cases of crushing injury to the spinal cord.

Dr. WILLIAM H. THOMSON said he agreed with the last speaker, that the case appeared to be one of localized myelitis. Such cases were not unknown in connection with peripheral palsy. It would be very difficult to account for that association on any theory of peripheral neuritis. For a good while he had given up the idea that a diphtheritic paralysis was necessarily a neuritis; he thought the changes were very often characteristic of pure degenerative processes rather than inflammatory processes. More than once had he met with cases which could be explained better on such a theory.

Dr. SACHS said that the case was an unusual one, and had been very closely studied by him for a number of months. He had at first supposed there was a myelitis or a poliomyelitis on the left side, but he had abandoned that idea because of one symptom which would be hard to explain if there were only a myelitis, *i.e.*, the sensory disturbances in the arm. He saw no reason to depart from the diagnosis he had expressed. He believed that this case differed from others of diphtheritic palsy in that instead of the peripheral portion of the nerve being affected by the diphtheritic poison, the part of the plexus very near to the spinal cord was affected—in other words, the nerve roots. Between the anterior roots and the sympathetic system were communicating branches, and if one or more of these branches were affected, the influence of the cilio-spinal centre would be cut off. This would explain the loss of function without supposing an invasion of the cord.

Dr. ONUF said that if we assumed an affection outside of the spinal cord, we must assume that it is at the point of union of the two roots where the sensory fibres had passed the spinal ganglion and joined the motor roots. It was at this point that the communicant branch of the sympathetic nerve which conducts the pupillary fibres entered. Such a combination of symptoms could not be explained by any other lesion. Dr. Sachs' patient showed impairment of tactile sensation, also diminution of pressure and pain sense. It was hardly possible to assume that such a combination of symptoms could be produced by an affection of the anterior gray substance of the cord; we must assume an affection of the eighth cervical and first dorsal nerve close to the point where the motor and sensory roots meet the communicant branch which conveys the fibres to the pupil.

DISCUSSION ON DISSOCIATED SENSATIONS AS A MEANS OF DIAGNOSIS.

Dr. C. A. HERTER said that he believed dissociation of sensation was met with, especially the loss of pain and the temperature sense, with only a partial loss of the tactile sense, in cases of peripheral neuritis. He had seen cases of alcoholic neuritis in which in certain areas of lost sensibility this condition was present, and this was particularly true late in the disease when the period of hyperæsthesia had passed. But he had not met with any cases of absolute loss of pain and temperature sense with preservation of the tactile sense except those which might be reasonably supposed to be instances in which the lesion could be located in the spinal cord. He called attention especially to cases of hemorrhage into the spinal cord, and especially into the central canal. About a year ago he had had a patient in the City Hospital who had fallen into a hatchway and struck on the right shoulder. This man said that immediately after this accident, he had been partially paralyzed in all four extremities. When seen by the speaker, about two months later, there was an atypical Brown-Séquard paralysis. His right leg was completely paralyzed; the left leg exhibited loss of sensation to pain and temperature with perfect preservation of tactile sense. The internes of the hospital had made a diagnosis of syringomyelia, as had been expected. After two or three months, there had been a gradual return of pain and temperature sense. This case was undoubtedly one of hemorrhage into the gray substance of the cord. He had noted in the recent literature the report of half a dozen cases of a similar character. From this it appeared to be an established fact that hemorrhage into the central canal and gray matter of the spinal cord was very apt to give rise to this symptom. These were the only conditions under which he had met with this particular dissociation of sensations.

Dr. SACHS said that it had probably been the common experience with most neurologists that whenever the pain and temperature sense were diminished, or lost,

and the tactile sense remained, the case was looked upon as a gliosis or a syringomyelia, particularly if associated with atrophic palsies in the parts in which the sensory disturbances were manifest, and the reflexes altered in the lower extremities, showing on the whole a process most marked in the cervical portion of the cord. His experience had led him to doubt the pathognomonic value of this special symptom. Many years ago, Weir Mitchell had described this dissociation of sensation in injuries of the peripheral nerves without attaching much importance to the symptom. The cases in which the speaker had observed it were several of syringomyelia, and in a case of Pott's paralysis. It was the occurrence in this last disease that had led him to give this subject considerable thought. This patient, an adult, was still under treatment for the disease, which had been progressive. When first seen by the speaker, the man had been supposed to be suffering from vague rheumatic pains, but an incipient kyphosis had been found, and other symptoms indicating Pott's disease and Pott's paralysis. On making the sensory examination, he had been greatly surprised to find a very distinct dissociation of sensation in exactly the order observed in cases of syringomyelia. He had therefore been inclined to think at first that there must be some central changes in the cord in this case, but further progress of the case had shown it to be simply one of Pott's paralysis and nothing else. At the present time, this man had spastic rigidity of the lower extremities without any involvement of the bladder, or other symptoms pointing to marked myelitic changes. Moreover, there was now complete loss of every form of sensation. He was inclined to regard the condition therefore as having been due to the first impact of the vertebral trouble—that in this case it was practically a root trouble. We were likely to get this dissociation in all those diseases beginning, not in, but around the spinal cord, choking up some of the root fibres.

Six years ago he had seen a case presenting distinct atrophic paralysis in both upper extremities with slight increase in the reflex in one lower extremity, and with a distinct dissociation of sensations, as seen in syringomyelia. The man gave a specific history. The progress of this case had shown that in all probability it was one of localized specific meningitis around the cervical portion of the cord. The disease had become absolutely stationary; he had developed absolutely no other symptoms;

and now there was loss of tactile sense and absolute loss of the muscular sense, with preservation of the pain sense. The temperature sense was diminished. Such a case showed that we must not attach too much importance to that special form of dissociation of sensations which had been associated with syringomyelia. He had still another case under observation—one of gliosis, in which there was some dissociation of sensation but not exactly of the kind ordinarily described as present in such cases. This symptom of dissociation, he thought, would occur where the central gray matter was affected, whether from hæmorrhage or central gliosis, but much importance should be attached to the fact that it might be a symptom of early root disease.

Dr. N. E. BRILL said that about ten years ago he had reported a case which would corroborate the position taken by Dr. Sachs. It was one of fracture of the lamina of the fifth cervical vertebra. The patient was then thirty years of age, and the fracture had occurred when he was about ten years of age. When seen by the speaker he had presented marked signs of compression of the cord with some anomalous muscular dystrophies. Dr. Sayre had examined the case and found undoubted callus, and on pressure posteriorly, over the injured region, there had been a sensation of cold which the patient had himself noticed previously.

Dr. HERTER said that while he would agree with Dr. Sachs that damage to the posterior nerve roots might be a cause of dissociation of sensations, his experience had been that it was ordinarily not so. In most cases in which the vertebræ were so fractured as to give rise to compression of the nerve roots, and in most cases of tumor in which the posterior nerve roots were implicated, all forms of sensibility were abolished at the same time. He had seen several cases of fracture of the vertebræ with pinching of the nerve roots. In some of these the autopsies had shown that only the nerve roots had been damaged. In these cases all three forms of sensibility had been lost.

Dr. SACHS said that he did not wish to be understood as considering disease of the nerve roots a frequent cause; he only wished to point out the possibility of such a cause.

Dr. IRA VAN GIESON said that there was much reason to believe that the long fibres in the posterior columns conveyed pressure or tactile sensations. There was

probably a small complement of fibres which also conveyed muscular sense impulses. It seemed to him to be pretty definitely shown that the column of Gowers' conveyed pain sensations. There were some cases which seemed to show that temperature sensation and pain sensation travelled together. The tract of Flechsig seemed to be concerned with a conveyance of muscular impulses. In syringomyelia, the pain tract was liable to be interrupted, but whether this column of Gowers' was interrupted, or the interruptions occurred in the cord, there was invariably an analgesia of the opposite side. When these tracts in the medulla were separated so that tumors might destroy one or the other of them, it was found that Gowers' tract in certain cases conveyed temperature and pain sensation, Flechsig's column, muscular sense impressions, and the posterior columns tactile sensation and muscular sense. Regarding the association of muscular and painful sensations, clinical evidence was conflicting. In some cases there might be a distinct loss of pain sensation, but not of temperature sensation. One might conclude, therefore, that in certain individuals the temperature sense fibres passed along with the pain fibres, and that in other cases they pursued another course. He thought that certain reported cases of syringomyelia of traumatic origin had been nothing more or less than hæmorrhages into the spinal cord. Hæmorrhage into the spinal cord was liable to assume a columnar distribution in the lymphatics, or perivascular spaces which pass in from the anterior spinal artery. In his opinion, a lesion of the posterior roots would result, not in dissociation of sensory impressions, but in destruction of several of them at the same time.

The recovery of lost functions, as shown in Dr. Sachs' case was an exceedingly interesting topic. The only explanation seemed to be the cutting off of the conducting path at some particular level, and the seeking out of new channels of conduction in the spinal cord.

Dr. A. WIENER said that he had also observed Dr. Sachs' case of Pott's disease, and had since then examined other cases regarding the dissociation of sensations. He had been surprised to see how often this occurred. He had, however, never yet found in any particular case such a complete absence of pain and temperature sense as in syringomyelia. If the temperature and pain senses were simply diminished, the lesion might be at the roots, or in the cord, but where they were completely absent,

we could be pretty sure about placing the lesion within the gray matter of the spinal cord.

Dr. SACHS said that Dr. Van Gieson expected all forms of sensation to be abolished when there was a lesion affecting the posterior roots. In reply, he would say that a case had been reported some years ago by Thomsen, in which there was clinically a distinct nuclear palsy, yet at autopsy there was found to be an infiltration of the third nerve root fibres, and this infiltration had evidently choked up some of the fibres, but not all of them. In the case of specific disease, it had been shown that a lesion might affect part of the root without involving all the fibres; hence, he felt that dissociation might after all be due to partial affection of the posterior root fibres.

Dr. HERTER said that we must distinguish quite sharply between the cases in which pain and temperature sense were absolutely lost, and the tactile sense perfectly preserved, and those cases in which the tactile sense was nearly perfect, and also between cases in which tactile sense was perfect, but there was a partial loss only of the pain and temperature sense.

Dr. VAN GIESON said that the example quoted by Dr. Sachs was hardly a parallel, for in that case the oculo-motor roots were involved. The fibres of the posterior roots all had different functions, while the oculo-motor root was strictly motor. He was willing to admit that there might be chronic processes which would only involve certain fibres of a root.

Dr. CHARLES L. DANA said that (1) differentiations of cutaneous sensations did not occur in peripheral neuritis except to a very minor extent. The only exception which he recalled was the doubtful one of Morvan's disease, and perhaps of leprous neuritis. (2) Differentiations of cutaneous sensations occurred in spinal cord diseases, but only completely in those diseases involving the central part of the cord (traumatic hæmato-myelia, syringo-myelia). In columnar and spinal root disease, like tabes, the differentiations occurred, but were never complete—*e. g.* complete separation of touch from pain or temperature anæsthesia—at least this had been his personal experience. (3) Differentiations of cutaneous sensations occurred most strikingly and completely in ponto-bulbar lesions, and were of diagnostic value here, taken with other symptoms. (4) Differentiations of cutaneous sensations did not occur in any sharp extent in organic cortical lesions. The cutaneous "lo-

cality sense " was the one most singled out. (5) Differentiation of cutaneous sensations did not occur completely in hysterical anæsthesia, though the pain sense was most involved. There were some exceptional cases in which the pain sense was distinctly singled out. The differentiation of cutaneous sensations, therefore, was least in peripheral nerve lesions, increased in spinal root lesions, and again in central spinal cord lesions. It was most striking and complete in ponto bulbar lesions, and became very slight again in cortical lesions. Through the whole series the pain sense was the one most often differentiated, except in the cortex cerebri.

THE PRESIDENT said that in cases of transverse myelitis, although there was a loss of sensation, the pressure sense might remain. It was possible to imagine a lesion from hæmorrhage into the cord, which would follow out exactly the lines of syringomyelia. It must be, however, a very rare condition.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, January 27, 1896.

President, Dr. JAMES HENDRIE LLOYD, in the chair.

The first paper of the evening was by Dr. EDWARD N. BRUSH, of Sheppard Asylum, Md., on

SOME CLINICAL EXPERIENCE WITH THYROID EXTRACT IN THE TREATMENT OF IN- SANITY.

Dr. Brush in his paper referred to the statement made by Dr. Clouston, Medical Superintendent of the Royal Edinburgh Asylum, in the annual report of that institution for 1892, concerning the use of the thyroid in myxœdema and subsequently in cases of myxœdematous insanity, and its first application in this condition by Dr. Macpherson, a recent member of the staff of the Royal Edinburgh Asylum; and to the statement of Dr. Clouston, that hereafter myxœdematous insanity would, he trusted, "not again appear in our tables," as in the future it would be treated and cured in its early stages. Dr. Brush then discusses the various investigations which had been made concerning the functions of the thyroid, from the experiments of Shiff, 1859, down to those of recent date, and to the impossibility, in view of our limited knowledge, of exactly defining the functions of this gland; he said, however, that from experiments carefully worked out in the laboratory, and by clinical observation, the use of the thyroid gland in myxœdema, cretinism and certain forms of insanity was based upon scientific, physiological and rational therapeutical principles, and had nothing in common with the empirical use of animal extracts so-called, employed apparently, upon the principle that "every part

strengthens a part." In the treatment of myxœdema, and subsequently in the treatment of cretinism and insanity, attempts have been made to supplement the functions of atrophied glands, or of glands improperly or deficiently performing these functions, and the treatment of myxœdema and myxœdematous insanity and cretinism appears to have been conducted upon the theory that the thyroid administered either in extract or in substance could supply something which was lacking to complete normal physiological function. Dr. Brush then referred to the observations which had been made by all who had been associated with the insane, that their mental states were influenced by intercurrent bodily disease, and that sometimes recovery followed attacks of disease characterized by febrile action, and stated that the early use of the thyroid and treatment of forms of insanity not associated with myxœdematous appears to have been based upon observations made in the use of thyroid in other conditions, showing that a mild febrile reaction follow the employment of the gland. It was to induce this febrile reaction, Dr. Brush said, that first suggested the employment of the thyroid in non-myxœdematous cases of insanity.

Dr. Brush then reported six cases in which he had employed the thyroid gland for various conditions of mental disturbance. Case I. was a woman, age 51, who had been over two and one-half years under care, and some five years insane, when the thyroid was first employed. This case had been characterized by delusions of doubt and fear, especially by fear of contamination, and while the mental condition remained in many respects as impaired as before treatment, the patient was able, in many ways, to do things which she had before treatment been unable, because of her delusions, to perform, and had better control over most of the ideas of contamination which harassed her.

Case II. had been over a year under treatment when the thyroid was employed: she was a case of chronic delusional insanity, violent, untidy, destructive, with rough skin and scanty hair. She rapidly improved under the administration of the thyroid continued at varying intervals for three months. The gain in weight in this patient from February 13, 1895, until the 10th of August of the same year, was nearly forty-four pounds. This patient had not wholly recovered from the influence of some of her delusions, but was able to go home

at the time last mentioned, and has been able to remain at home ever since in quiet and comfort. Before the thyroid was employed, her case had been looked upon as hopeless, and the friends of the patient had been requested to remove her.

Case III. was a mild case of simple melancholia of several months' duration, with some slight enlargement of the thyroid gland. This patient was first more depressed, this was at first, loss of weight and diminution of red corpuscles of the hemoglobin with an increase in white corpuscles. At the time of the reading of the paper the patient was convalescent.

Case IV. was a woman with attacks of recurrent maniacal excitement, manifested in 1872, 1883, and 1894. The last attack had been very prolonged and very violent; and when the patient in November last was put upon the use of the thyroid, she was noisy, turbulent, destructive and untidy. On the 15th of November the first dose of the thyroid was administered, exactly one month from date the patient was among convalescent patients, quiet, lady-like, but somewhat depressed. In this case there was considerable loss of weight following the use of thyroid. In the first part of its employment the patient's condition was so maniacal that it was impossible to make a blood count or to take the temperature. There was, however, some evident elevation of temperature, flushed face, free perspiration and slight nausea. At the time of the presentation of paper this patient's condition had continued to improve, and she was practically convalescent.

The two remaining cases were of chronic melancholia in men in which no improvement was manifest.

In the second case there was not only a marked gain in weight, apparently from the very beginning, although for the first ten days it was impossible to take the patient's weight, but there was a remarkable change in the skin and hair, there was very free desquamation, and an abundant and rapid growth of hair on the scalp, which had been previously very short, scanty and harsh. The new hair was dark in color and soft and abundant.

Dr. Brush concluded by stating that he was inclined to endorse the views of Dr. Bruce as expressed in the *Journal of Mental Science*, that the thyroid undoubtedly produced a more or less feverish condition, the action and reaction to which is of considerable benefit to the

patient, that it is a direct cerebral stimulant, that there is a strong probability that at some periods of life the administration of thyroid supplies some substance necessary to the bodily economy.

DISCUSSION.

Dr. FRANCIS X. DERCUM.—This subject presents itself to my mind in two ways. In the first place, it seems to me that a drug which increases blood pressure, which increases vascular tension, which increases the pulse-rate, and is a powerful febrifacient, is a drug which very likely will modify chronic pathological changes, especially slight changes such as those upon which insanity often depends. Another possibility is that through its effects upon the circulation, it may have a distinct stimulating effect upon the various emunctories. I think that in one of Dr. Brush's cases, a distinct increase of the secretion of the skin was noticed. It would be of interest to measure the urine in these cases. The drug may act as a stimulant, and indirectly by favoring the excretion of various toxic substances upon which the insanities probably depend.

Our experience is entirely too recent to enable us to form any positive conclusions, but I think that such contributions as that of Dr. Brush, are of exceedingly great interest.

Dr. A. R. MOULTON.—In studying the literature in regard to the use of the thyroid in various cases, I have gone over much the same ground as Dr. Brush has done and will not take up time with a delineation of my research. I would say that I have been much impressed in my reading and conversation with those who have used thyroid extract, with the fact that there seems to be little unanimity of opinion with regard to its effect in any disorders outside of myxœdema. While one enthusiast may strongly advocate its use in melancholia and states of stupor, another observer thinks that it has no use except in myxœdema and in a few affections of the skin. It has been used to advantage in syphilis, not in conjunction with mercury and iodide of potassium, chiefly I believe in those cases that have resultant skin lesions.

I did not hear Dr. Brush quote the cases of Dr. Charles K. Clarke, of Kingston, Ontario. Dr. Clarke has used the thyroid to a considerable extent and has reported the results of his treatment in five cases. Three of the pa-

tients were cases of chronic dementia, one was a case of chronic melancholia, and one a case of puerperal mania, or rather was in a stuporous state following puerperal mania. One case of dementia recovered in three weeks and had a relapse in one week after the drug was discontinued. In another case of dementia the patient was worse physically and no better mentally for treatment, recovery was complete in ten weeks and the patient remained well. A third case of dementia was rational in two and a half weeks, and well in three weeks. I do not find any account of the subsequent history. A case of delusional melancholia was completely changed in two and a half months, when the patient seemed to be recovering.

The case of stupor following puerperal mania was much improved in less than three months and was able to go home and resume her household duties, though not completely restored. These are very remarkable and surprising results.

Dr. George R. Murray, of New Castle-on-Tyne, says that a relapse may be expected in myxœdema in about one hundred days after the discontinuance of the drug. It would seem, however, that in insanity, if relapse is going to occur, it will do so much more quickly.

In England there seems to be a disposition to give up the use of the thyroid in most of the skin diseases, and it is being confined chiefly to the treatment of myxœdema.

Sir Hugh Brevor has reported the successful use of thyroid, in five-grain doses, continued ten weeks, in universal alopecia; but Mackenzie, in commenting on Sir Hugh's case, says he has used the remedy in this disorder without any beneficial effects.

He alludes to the fact that patients with this usually incurable disease, sometimes get well independently of treatment. He has seen two such results, and is cautious against an erroneous conclusion when a remedy is tried.

When I note the wonderful changes that have been reported from the use of thyroid extract in insanity, I can but remember the fact that in many forms of insanity, if you do almost anything unusual, the patient will improve for a time; and when Dr. Brush spoke of the case of disorderly mania which became pleasant and agreeable under the use of thyroid extract, I recalled the case of an old gentleman some years ago, who insisted upon spitting on his doctor and using him very

roughly, but who got into a much better state under the use of tobacco. I have seen epileptics improve very much after the introduction of a seton, and their convulsions are usually lessened when the bromides are replaced by cod liver oil. We have, of course, all seen temporary improvement, and even recovery, follow an intercurrent disease, and it was partly due to that fact that Clarke was induced to experiment with the use of thyroid.

I am loath to give much credence to some of the statements of the wonderful results following the use of this remedy, when I know that very simple means will bring about decided changes in mental disease. To-day, being aware of the fact that nearly every gentleman who has used the thyroid in mental disease, as well as in myxœdema, has spoken of the increase of the pulse, I made experiments with distilled water on a number of patients, and much to my surprise found that three minutes after the injection, the pulse was increased on an average, twenty-five beats, falling back to the normal in six minutes, and in some to considerably below normal. The case which seemed most wonderful to me, was one in which there was an intermittent pulse, seventy-five to the minute. After the injection of twenty minims of water, the intermissions were entirely corrected, the pulse beating sixty per minute. Six minutes later it was sixty-six. An hour later, the pulse was still beating regularly. It seems to me that we may put too much reliance on the remedy that we may be using, and give it too much credit. At the same time I think that such investigations, a report of which we have heard to-night, are of the greatest value, and I approve of them most heartily.

My personal experience with thyroid extract has not been an extensive one. I am giving it now to a patient with agitated melancholia. He has been taking the remedy for about a month. There is no increase in the pulse, the temperature has not been affected, and none of the symptoms have appeared that have been mentioned by nearly all writers; indeed, I cannot see that he has been in any way affected whatever.

Dr. WILLIAM OSLER, of Baltimore.—This subject is one of exceptional interest. Whatever may be the function of the internal secretion of the thyroid, one very important work that it has to do, is to stimulate brain metabolism, for certainly the absence of that function is characteristic of all cases of myxœdema. Whether they

have profound mental symptoms or not, there is an extraordinary cerebral apathy. The cases of myxœdema that have come under my care, have not had insanity, but they have all had profound apathy. The change in the physical condition; the loss in weight, the extraordinary change in the nutrition of the skin and the nutrition of the hair under the use of thyroid extract has not been so striking as the change in the mental condition. The patients have become bright and intelligent and have been able to resume their social duties. It does seem to me that we must regard the thyroid extract as containing a most potent cerebral stimulant which does alter in some way the metabolism of the nerve centres and stimulates them in a most extraordinary manner.

Dr. CHARLES K. MILLS.—I have not had much experience with the use of the thyroid in insanity, but I should like to refer to one experience in the past year. More than a year ago a patient came to me from the west suffering from a disease which has been described by Dr. Dercum as *adiposia dolorosis*. She had paroxysms in which her arms and legs became much swollen generally, and in spots, with great pain along the nerve trunk, and in the legs below the knees. She was unable to walk. She also had a peculiar mental condition, whether due to the suffering or as a part of the disease itself, might be a question. She was emotional, very much depressed, hysterical, and suffered much from insanity. After a week or two, I put her on thyroid extract in five-grain doses, increasing to ten. This caused nausea and vomiting and one or two febrile attacks, and finally I decided on a small dose, two to five grains, which she continued to use. During the year she has been most of the time on this treatment, and has made a most remarkable improvement. The paroxysms have almost entirely stopped. There has been a general decrease in body weight, a decrease in the general morbid swellings, and almost entire disappearance of the knotty swellings and the painful conditions. Her mental condition is also much improved. I think that the case is worthy of record in this connection as a special case.

Dr. EDWARD N. BRUSH.—In regard to the point made by Dr. Moulton, I have stated that none of these patients knew that anything unusual was being done. The extract was administered not by injection but by the mouth. In the paper I dwelt upon the fact that we must bear in mind that any unusual physiological perturbation in

insane patients is apt to produce change in the condition.

I agree with Dr. Osler that the thyroid has a distinct stimulating effect upon the higher nerve centres. In talking of it I have compared the effect to that of cocaine, except that it is more lasting.

With regard to the excretion of urine. The amount of urine is decidedly increased in some of the cases. In two cases now under observation, we are making daily measurements, and there is an increase in the urine and there is said to be an increase in the nitrogen. There is also a stimulation of the blood-making function. At first there is a decrease in the number of corpuscles, but then they increase very rapidly.

Dr. WILLIAM OSLER, of Baltimore, read notes on

(1) PERIPHERAL NEURITIS FOLLOWING SUN-STROKE.

(2) UNUSUAL TYPES OF PARAESTHETIC MERMALGIA.

(3) LABYRINTHINE VERTIGO AND OCULAR DEFECTS.

DISCUSSION.

Dr. S. WEIR MITCHELL.—As to the last paper of Dr. Osler, I am under the belief that I was the first to call the attention of the general profession to the existence of vertigo in connection with ocular disturbance, whether muscular or of accommodation. I think that this was in 1872. I recall one case which parallels the one reported by Dr. Osler. The patient, a well known manufacturer, having gone the rounds of the neurologists, was referred to me. I found that he was suffering from intense vertigo of a peculiar type. It came on when he first went out of the house in the morning. As soon as he got out of the door, he would stumble down the steps and along the pavement for some distance. He always pitched to the left. I told him that I thought that it was an affair of the eyes. He said that two or three others had told him the same thing, and that he had had glasses applied. I referred him to Dr. Thomson, who applied proper glasses, and he became a new man. He never had any discomfort after the new glasses were applied.

In regard to the question of muscular hyperæsthesia. We all know that there is a temporary condition which arises from excessive exertion, when the muscles become sore to use and sore to handle. Sometimes this condition becomes permanent. The mechanism of tissue, change to repair appears to be interfered with. We met with many such cases during the war. A good many notes of these were taken by Dr. Moorehouse and myself. There were men who after long and hard marching, day after day, underfed and overworked, got into a condition something like permanent muscular fatigue, with a certain amount of general feebleness, making them quite incompetent. A good many of these cases finally got into the hospital, and exhibited a con-

dition, which at that time, was to me novel. It continued for weeks and months, and was only cured by rest, good food and tonics. It usually got very slowly well. In hysteria, in women I have seen cases where every motion of the body gave rise to pain, and every muscle of the body was apparently as painful as are the muscles in certain cases of neuritis. These cases commonly can be cured by massage and rest.

As to the very interesting cases of meralgia, I have just seen such a case in a neighboring city. Some years ago the patient, a lady, after skating walked home in a strong wind. Following this there was a swelling of the thigh, which was so great, and accompanied by so much heat, that it was considered an abscess. Finally, the swelling passed away, leaving the thigh a little larger than before. Then followed an anæsthetic condition which continued for a long time. This passed away and the part became hyperæsthetic. At the present time there remains deep soreness, and the deeper the pressure the greater is the discomfort and even pain. All of the symptoms are brought to a maximum by exercise. Otherwise she is in sturdy health.

There are somewhat similar cases where the trouble is distinctly in the periosteum, and this should be borne in mind. Many years ago I saw a lady who had a swelling of the thigh, followed by anæsthesia and hyperæsthesia, which passed away, leaving intense pain on walking. I insisted on a surgeon cutting down, and there was found a little thickening of the periosteum and half a teaspoonful of pus. The second case was that of a gentleman from the West, who had suffered for years, and was supposed to be hysterical. He had two spots at the lower part of the tibia, where he had, at times, intense hyperæsthesia, and then this would pass away to return anew. Finally, I insisted upon an operation. Dr. Morton cut down on the bone and found two small cysts in the tibia about the size of marbles. These were removed and there was no further trouble. In both of these cases there were many of the symptoms usually found in the cases which probably are more purely neuroses.

Dr. HENRY J. BERKLEY, of Baltimore, read a paper on
EXPERIMENTAL LESION OF THE CORTICAL TISSUES OF THE RABBIT'S BRAINS INDUCED BY
ACUTE ALCOHOLIC POISONING (See page 236).

Dr. FRANCIS X. DERCUM presented

A CASE OF TROPHIC ULCERATION OF THE FEET.

H. C. I., female, aged 21 years, housekeeper, American.

Family History.—Negative.

Personal History.—Patient did not menstruate until she was eighteen years of age. In average health, with the exception of an attack of chills and fever when she was ten years old, up to seven years ago. At that time she noticed on the sole of the left foot a sore which resembled a frostbite, and which lasted the better part of the winter. Towards summer it disappeared, to be followed the next winter by a recurrence in the same situation. This time, however, an ulcer appeared upon the sole of the other foot. As before, both ulcers persisted during the winter, and healed again during the summer. This sequence of phenomena recurred every succeeding winter until the present time. Patient states that the trouble has always been accompanied by numbness.

Was first examined on September 10, 1894. At that time a painless ulcer existed on the inner aspect of the right foot, in the tissue over the meta tarso-phalangeal articulation of the great toe. It was confined to the skin and subcutaneous tissues, and did not in any way involve either bones or joint. It was found that the skin was absolutely anæsthetic over the toes and distal ends of the metatarsal bones. Above this area, the tactile sense was preserved but slightly diminished. The temperature sense was, however, lost and this loss extended to about one inch above the malleoli. The pain sense was also lost in the same area, and this loss extended up to the knees. It was further noted that the nail had been lost from the middle toe of the left foot, its situation being covered by an old cicatrix. A sensory examination of the left foot revealed practically the same sensory losses as the right foot. It was further noticed that the calf muscles were either atrophied or

poorly developed. The right leg, at its greatest circumference, measured but 26 centimetres, the left 29 centimetres. This lack of muscular development was also noted in the arms, the right measuring 18 centimetres and the left 18.75 centimetres. Muscular development as a whole is poor. The KJ's were + on both sides. No sensory disturbances were noted elsewhere.

She was again examined in January of '95. No changes were noted save a loss to temperature sense in the tip of the right forefinger. Measurements of the legs revealed, however, a slight decrease in their circumference, for instance, the right leg measured 25.3 centimetres, the left leg 26.2 centimetres.

Was re-examined January 16, 1896. *Left foot.* Extensive perforating ulcer of the ball of foot. There is also greenish slough covering ulcer. On dorsal aspect of fourth toe is a similar, though much smaller perforating ulcer. External border of ball of little toe shows scar of former ulcer. Loss of temperature sense as at previous examination, save that the responses on the external aspect of the leg are much more uncertain than at previous examination. On the inner and posterior aspects of the leg the thermal sense is preserved, though evidently diminished. Total loss of cutaneous sensibility over toes, ball of foot and small area an inch and a half back of the toes. Tactile sense preserved elsewhere. Marked loss of the pain sense as far as lower third of thigh. Loss is more marked anteriorly than posteriorly.

Right foot.—Presents perforating ulcer of ball of little toe in process of healing; small healed perforating ulcer on tip of middle toe; small perforating ulcer healed on dorsum of fourth toe. Temperature sense absolutely lost over dorsum and sole of foot up to a line above the malleoli; also impaired over leg, but impairment not so marked as in left leg. Analgesia marked all over and in the lower two-thirds of the leg. In the upper third and over the thigh the pain sense is diminished.

KJ's +. Tips of fingers, especially in the left hand, are distinctly anæsthetic in regard to temperature. Tactile sense preserved. Pain sense diminished in finger tips up to about the middle phalanges. Both legs are distinctly wasted, the right apparently more than the left.

Adjourned.

American Psychiatry.

UNDER THE DIRECTION OF

R. M. PHELPS, A.M., M.D.,

Rochester, Minn

With the Following Collaborators:

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ORIGINAL STUDIES AND REPORTS.

Micrococcus Pneumoniae Crouposa in a Case of Puerperal Insanity.

Mrs. A. B., enjoyed good health before this confinement. Labor was normal and nothing wrong was noticed the first week afterward. She then became excited and restless and later developed symptoms of incoherence and violence. She was kept at home, under restraint, two weeks, though she steadily grew worse and finally became destructive. When admitted here she was excited, completely incoherent and exhausted. Restless, but showed great motor weakness. Took food under protest; talked incessantly; tongue dry and brown; irregular fever; pulse weak, quick and

irritable; no tendency to bed-sores nor petechiæ. Death occurred from exhaustion seven days after admission; autopsy nine hours after death; nothing abnormal about body; uterus undergoing normal involution; no local septic condition discovered. On opening the skull the calvaria and dura presented nothing abnormal. The arachnoid and pia were deeply congested, swelled, œdematous and covered with plastic lymph. Fibrinous deposits most marked along the vertex, where they formed numerous vegetation-like papillæ. The amount of fluid was increased and turbid. The entire brain was wet. The inflammation was not purulent. On examination the micrococcus pneumoniae crouposæ was discovered in the fluid and blood-vessels. Special staining showed them in considerable numbers clinging to the interna. This micro-organism was isolated and cultivated. The cortex was grayish pink and this color extended to a greater depth than usual. Punctæ vasculosæ were abundant and capillary hemorrhages numerous. The white matter appeared dotted with vacuoles, but on examination it proved to be a transparent substance from the degenerated medullary sheath of the nerve fibres. Microscopical examination of the pia showed the vessels congested and the surrounding tissue infiltrated with leucocytes within the meshes of the pia, and following along the vessels was a deposit of fibrinous material. Very little increase of connective tissue. Blood-vessels of cortex were congested and tortuous. The entire brain tissue was also considerably infiltrated with leucocytes. The peri-vascular and peri-cellular spaces contained quantities of these wandering cells. The neuroglia cells were increased and their delicate processes embraced all the proper brain elements. The nerve cells, especially those of the motor area, showed great impairment of structure. Examined in the fresh state the amount of pigment was found largely increased, the yellow granules crowding, and partly embracing the nucleus. Stained by Nissl's method, the cell showed great irregularity of structure with the ordinary stains, the cell protoplasm took a very deep and opaque shade. Passing to the white matter, the nerve fibres appeared swelled and varicose. The medullary substance had, in places, changed to a colloid-like matter. Some fibres became moniliform, by the breaking and segmenting of the medullary sheath. In places these small masses fused together, forming larger colloid-like deposits. This colloid change was found throughout the white matter, but most abundantly in the internal capsule and motor tract. They varied in size from eight to thirty micro-millimetres. This change was found in the fresh tissue, but hardening in alcohol and Mueller's fluid seemed to increase it. While it appeared to be produced artificially, to an extent, still normal tissue, hardened under similar conditions, was free from it,

so it evidently required degeneration of the medullary substance for its production. Along these moniliform fibres there appeared to be a cell attached to each, bead-like mass. Delicate fibres formed a reticulum around these masses and, where they had run together, they formed round, pyriform or multilobular masses with the axis-cylinders pressed to one side. The adjacent fibres appeared atrophied and their myelin destroyed. Over these colloid masses was the same reticulum seen about the smaller ones, and beside them ran the axis-cylinders of several nerve fibres. The pia seems to have been the first point attacked by the disease which later spread to the cortex, and finally the white matter became affected. No collection of pus was found anywhere. The micrococcus was mostly confined to the blood-vessels, but was also in the brain substance where it might have come from manipulation. Some of the wandering leucocytes appeared to enclose the microorganisms, but within these cells it was impossible to distinguish the capsule around the micrococcus, which we, plainly seen in the other localities. F. O. JACKMAN, Mt. Pleasant.

Subcutaneous Transfusion of Saline Solution in the Treatment of Insanity.

In the medical literature of the past several years, occasional reference is made to the use of saline solutions by subcutaneous injection, met only as a substitute for the intravenous transfusion of blood or artificial blood serum as formerly employed, but also as a therapeutic agent of some value in sundry states of asthenia and collapse. The central idea in all instances has been the rapid regeneration of the blood by introduction into the circulation of a large amount of "artificial blood serum," although the quantity and composition of the fluid employed, as well as the results directly aimed at, vary somewhat. Thus, Dr. Ralph Brown ("Neurasthenia and Its Treatment by Hypodermic Transfusions," J. & A. Churchill, London, 1894) basing his views upon the work of Dr. Jules Chéron, at St. Lazare, regards the use of an artificial serum containing chloride, sulphate and phosphate of soda as a most valuable agent in the treatment of neurasthenia. Dr. R. M. Cunningham (*Virginia Medical Monthly*, Dec., 1893) has obtained excellent results in acute lobar pneumonia from injections of solution of sodium chloride, sixty grains to the pint, one pint being the amount usually given. Dr. Harold Williams successfully treated a case of collapse from cholera morbus by introducing beneath the skin a quart of solution containing fifteen grains sodium bicarbonate, and thirty grains sodium chloride (*Boston Medical and Surgical Journal*, Oct. 4, 1894). From the Maryland Hospital for the Insane ("Annual Report," 1893) came good reports of the use of saline solutions, egg albumin in the treat-

ment of insane patients unable or unwilling to take food; and favorable results in similar cases have been obtained by Ilberg and Lehman, in Germany, from the use of saline solutions alone. Dr. George F. Keene (*Boston Medical and Surgical Journal* Oct. 4, 1894) met with gratifying success in the treatment of one case of acute insanity by injection of 0.73 per cent. sodium chloride, two quarts daily, and highly commends the treatment in cases of insanity in which auto-infection is an etiological factor.

Still, if one may judge from the rarity of reference to this method of treatment in American psychological literature, these "hypodermic transfusions" have in the treatment of acute insanity, been but little used. It is thought, therefore, that a brief statement of the results obtained at the Alabama Insane Hospital by the use of saline solutions, under several modifications, may prove of some interest, the treatment having during the past three years been employed in about twenty-five cases of insanity.

The apparatus and technique are simple, the former consisting of a litre bottle, a twelve to fourteen-foot rubber tube with cut off, and a large hypodermic or small aspirator needle. All of these must, of course, be rendered aseptic before use. The solution employed is blood-warm, sterilized 0.75 per cent. solution of sodium chloride, to which, if desired, other sodium salts, or magnesium sulphate or aloin for laxative effect, or egg albumin (nutritive solution employed at Catonsville) may be added. The bottle and tube are filled with the solution, the needle attached to one end of the tube, the other end dropped into the bottle, and the latter raised to the height desired by a cord and pulley, or preferably (since the entire apparatus is then easily transportable) by a ten to twelve foot reed or wooden rod, having a hook at one end to which the bottle can be quickly attached. The fluid is syphoned over, rate of flow being readily regulated by the height to which the containing vessel is raised. The fluid is injected into the loose subcutaneous areolar tissue of anterior abdominal wall or gluteal region, the skin being preferably cleansed before introduction of the needle. Cocaine may be used if the slight pain is complained of. The amount of fluid ordinarily introduced is one litre, which quantity can be easily injected in ten to twenty minutes. Absorption is rapid, the large hemispherical swelling caused by the fluid generally disappearing entirely within a quarter of an hour after the flow of the solution is stopped. We have not given the injections oftener than once a day. In no instance have we had any untoward after effect—no suppuration, no especial tenderness—and if asepsis is perfect, none need be feared. We have found the simple 0.75 per cent.

salt solution as efficacious for all purposes as any of the mixtures.

Among the favorable results noted have been: increase in actual pressure, strengthening of heart action, general improvement in circulation, increased secretion of urine, with probable increased activity in elimination of toxic matters, increase in activity of the skin, and a general rise in vital tone.

The researches of Sanquirico (quoted by Keene *loc. cit.*) tend to prove that subcutaneous transfusions exert a decided antitoxic influence by diluting and hastening the excretion of poisons, the natural corollary being that in cases of insanity, presumably due to auto intoxication, from inadequate elimination or other cause, favorable results are to be expected. Our experience is in accord with this view, the most strikingly beneficial results having been obtained in cases of acute insanity with typhoid or auto-intoxication symptoms, the harsh dry skin becoming moist, sordes and dryness of lips, mouth and tongue diminishing or disappearing, mental state improving, and action of both bowels and kidneys becoming more nearly normal. Many cases in which food is refused are in the condition just referred to, and in those the effect of even one or two injections in causing marked improvement with returning appetite is often very striking. And in this class of "starvation case" we prefer the simple saline solution to the nutritive egg album en mixture, the aim being rather to reawaken a desire for food than to give nourishment.

In several patients showing with the acute insanity marked renal disorder, the beneficial effect has been most obvious. In general terms, also, melancholic cases have improved to a greater extent, and in larger proportion than have the cases of excitement.

While in the main our results have been favorable, they have, by no means, been uniformly so, several cases selected as being especially suitable for this treatment, showing no improvement whatsoever (no one of these, however, has yet recovered, or seemed to do any better under any other treatment), also now and then a patient, refusing food, will persist in not eating, despite the injections.

As is often the case with new remedies, the first results are apt to be the most favorable. In the beginning almost all of our cases treated by the salt injections, showed marked improvement, which led us to form a higher opinion of the value of the treatment than subsequent and more general use has given foundation for. But a review of all of the cases so treated, certainly indicates that while we may not be possessed of an agent for the immediate and complete rehabilitation of the blood, and abolition of the auto-poison, along with the mental symp-

toms of auto-intoxication, the use of these saline solutions in judiciously chosen cases offers reasonable hope of benefit, which becomes realized as a brilliant cure now and then; a treatment, too, than which as yet we probably possess nothing better, when the least is said. It is deserving, therefore, of a place in the therapeutics of mental disease, and of further experimentation to determine the limits of its usefulness.

In addition to its probable value in the treatment of insanity, there can be little doubt of its efficacy in combatting the effects of hæmorrhage (in some of the French hospitals it is customary to give subcutaneous saline injections after surgical operations, when shock is present or feared), in exhaustion and collapse of any kind, and in acute *uræmia*.

We have also used the solution in two cases of acute lobar pneumonia, as a last resort however, and without much benefit, although in one of the cases there was temporary improvement.

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EDITORIAL.

Hopeful Faith a Curative Agency.

In the case of the cures by the Denver Healer, Schlatter, considered so critically by Dr. Eskridge in the last number, we have nothing of especial importance by itself, but full of meaning as suggesting a line of medical happenings concerning which intelligent laymen and even some physicians seem vague or mystified. For we are able to work against such movements only by first, clear reasons for their existence, and second, clear expressions of such reasons. For Schlatter's cures are only a few of a multitude. Father Mollinger and his many thousand cures in New York State constituted a much larger and more dignified example. A peculiar local example in a small town in Minnesota originated in the discovery by some one, of a shadowy vague image of the Madonna in an upper gable window of a retired Catholic church. From this illusive picture to wonder, from wonder to superstition, from superstition to the idea of the miraculous, from the miraculous to a healing power were rapid steps, logical enough to satisfy many fairly intelligent appearing people, to crowd the trains beyond their capacity with cripples and sick, to receive fairly respectable notice by the papers, even though the priests denied any belief, and had the window changed, and though many declared themselves unable to see the image. This sounds absurd and almost insane, but it is not. It is a common manifestation in even our advanced civilization.

We have known of a prayer cure revival, in which several chronic invalids were quite easily gotten up and about. The

Medical News recently apostrophizes the miracle of Lourdes, showing how a man successfully feigned the disease Locomotor Ataxia, carrying it successfully through many hospitals to a confirmation of the diagnosis by Charcot, culminating finally in a seemingly miraculous cure at Lourdes which made the place famous. And yet the cures at Lourdes went on.

There are many religious teachers who, mingle on a common basis of this kind (enthusiastic faith), medical with religious beliefs. The healing power seems to be easily assumed by any of these, whether they be insanely fanatic, or simple and honest, or fraudulent and grasping. Most purely exemplifying this, is, of course, the "Christian Science" movement, fallen indeed from its "high estate" of a decade ago, yet reaching into every prominent community, and in the aggregate huge even yet. Illogical and incoherent as its main book is, yet among its followers it was reduced to the fairly logical form of faith in scriptural sayings. It counted and counts among its enthusiasts those of reputed highest intelligence.

"The True Life" as lived and taught by Mary Hayes Chynoweth is the name of a paper, in its fifth year, published in Edon Vale, California, full of vague, religious prayerlike, rambling talk, chiefly originated by the author, and vaguely intermingled ideas about treatment of patients, on a half Christian science plan. Questions as to how she or Mrs. Glover Eddy received this extraordinary power, would probably not disturb many of their followers. We find, moreover, in the papers of any large city, a variety of fads and fancies—clairvoyants, vitopathists, magnetic healers, rubbers, spiritualistic healing, etc.—in some of which even if there be a slight element of truth, it does not elevate, but only carries the untrue portion to farther extremes.

Then, we have large numbers of the cures by such of the patent medicines as are inert, and by homeopathic dilutions. We have the Keely infatuation larger and more dignified than some, reaching to about every one of the United States, producing a marked present effect, and depending on suggestive effect for permanence. Not long ago I received a paper entitled *Mud*, advocating a trip to certain springs and a mud bath and many good testimonials of cure. Lately also, even attaining to the dignity of a descriptive article in a prominent magazine, and a respectable mention, is the College of Osteopathy, at Kirksville, Mo. With a show of frankness, with pictures of the class of students and a history of six years duration, this treatment yet seems vague and illusive, resembling massage. It claims buildings, graduated classes, wonderful cures, and from 300 to 600 patients steadily, from all the adjoining States.

The world is full of these in multifarious types, sizes and

phases. We have enumerated enough for our purpose, and have only in strict justice to add that nearly every most honorable physician will recognize cases of his own in which the cure was not caused by his drugs, but by faith in his treatment. Our present idea is to line these all up and try to account for them.

Not trying now to analyze the cures into those real, and those apparent or imagined, what are the underlying elements and explanations of them? We would say, first, a large number of diseases are (so-called) functional. Second, diseases not functional, have likely a functional element, at least the individual has. Third, mental influences make or unmake the functional diseases, and produce impressions on this functional element of those organic. Fourth, every disease tends and tries to get well of itself, aside from drugs or any efforts, either rational or irrational. Fifth, the stimulus, activity and hygienic influences incident to the cure are often very powerful. These sayings are trite in form, but carried to the extent I mean them, are not always acknowledged by the bulk of physicians.

The first statement is about the proportion of functional diseases, meaning in our conception, those diseases that center in the brain or the cord, which, without apparent organic base seem projected by and from them. The exact number of these we can only approximate, but it seems to be a large proportion. Such things as ovarian pains and discomforts and neuralgias everywhere can be seen, often to disappear like magic before a new controlling idea and a healthy occupation. Women, especially, are subject to this rule, because women have the sedentary life and lack of diversity which determines to the introspective state. They vary in health in a more facile way with the mental changes. Neuralgic pains even prostrating in character, seems at times induced solely by worry. Many that I have studied surely are. Others, of course, are partially so caused. Indeed, to be brief, with everybody and in organic diseases as well, the physician is often instructed to inspire hope as an aiding element. Moreover, some past experiences of each one of us will doubtless emphasize these remarks with convincing force. Diversion of mental state, and hopefulness of mental state act on every person in disease. Indeed, disease may be considered as an influence, against which the system is continually striving, and such helps as hope, activity and hygienic life can easily often throw the balance to the right side. Not that functional diseases are "willed" into existence or are willed out again, or that there is any planning, but that by sedentary or unhygienic influences, a temperament so predisposed, especially if aided by worry or other introspective condition, will show up in some neuralgias, of the face, of

the ovaries, of the chest, of the foot, etc. I once had a thoroughly healthy sane girl (whom I afterward discovered to have been at the time worrying about the imminent detection in a wrong that would at least lose her her place), complain to me severely of toothache. At her earnest solicitation I pulled an apparently healthy tooth, and she in one-half minute went into a quite typical convulsion. The whole thing was nothing—that is, nothing real, but a central brain condition projecting into the periphery certain symptoms like as a dream projects unreal things. This example possibly the most striking, is yet but one among many.

That mental influences are powerful is seen elsewhere than in medicine. Curiously it is enthusiasm and personal influence, not logic, that moves people to most of their activity. The crusades of the middle ages may be the hugest example, but city strikes and riots, revivals in temperance and religion, are but examples found in every line, even to the booming of a western town. Even a slight thread of probability, if taken up by a man who has intense enthusiastic belief, or can simulate such, will almost surely find followers. We, every one of us, are influenced by the current of feeling about us, and intelligent and broad study will enable us to rise only partially above such influences. If we laugh at the man who carries a potato in his pocket, indeed, we are lucky if he does not turn on us and make us acknowledge that we would "a little rather not" be one of thirteen at a table, even while we can find no logic or even good authority for its connection with our well being.

As physicians are we not too apt to say that the mind influences the body, and then go away and wonder at the next example. We see a blush rise instantly to the cheek by shame, or see from fear the pallor, the cold sweat, the sickening feeling, the shock like that of a prolonged surgical operation, even it is said, possibly death, and we do not wonder, yet passing to a case in which fear, produced by some unguarded remark, seems to determine toward death, or strong hopefulness seems to determine toward health and we wonder. Indeed, if a temporary emotion can bring so marked an effect as indicated above, why cannot a more permanent emotion produce a more pronounced effect, and why should it make the slightest difference in the result whether the hopeful activity be induced by prayer, by a belief in a miracle, by Schlatter's methods, by Christian Science seances, or by a change of climate; by an honest man or by a fraud?

Periscope.

UNDER THE DIRECTION OF

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PHILOSOPHICAL.

Gehirn und Seele By Prof. A. Forel (*Wiener Medizinische Presse*, 1894, No. 40). Paper read at the second general session of the sixty-sixth gathering of German naturalists and physicians in Vienna.

The purpose of this paper is, to give a clearer definition of the conceptions, mind, soul and consciousness; to demonstrate the intimate relationship existing between (human) soul, consciousness, subject matter of consciousness, brain activity and living brain matter, etc.: a relationship so close as to show that these components are inseparable from one another. We cannot conceive (human) soul without brain activity, consciousness without subject matter of consciousness (*Bewusstseinsinhalt*) subject matter (human) of consciousness without brain activity, etc.

"There is no brain without soul, and no complicated soul analagous to ours without brain; no matter without force, no force without matter."

In arguing these points the author wishes to bring about a reconciliation between religion and science. On the side of religion the mistake was made to have set up finite idols in the place of an infinite God, representing a true and unfathomable metaphysical omnipotence. On the other side science has gone too far. She has forgotten that her pretended (nominal) laws are not fundamental laws but only detailed expressions (*detailverhältnisse*) of the unfathomable monistic divine universe. She has also put up materialistic idols which are no better than the religious dogmata derided by her. The highest ideals of

humanity : Philosophy, religion, science, ethics and æsthetics ought to co-operate in harmony. The physician should not so bury himself in his special branch of knowledge as to become quite one-sided and to lose the connection that binds medicine to the other great branches of human thought. He ought to study philosophy, he ought to become less materialistic.

The author then passes over to a discussion of the fundamental principles underlying the conceptions of soul and consciousness. The idea of soul includes within itself the conception of consciousness. The latter without the subject matter of consciousness, is inconceivable. We can only become conscious of changes and of relations between things when an increasing activity which must underly consciousness is present. (Ein still bleibendes Bewusstsein schwindet sehr bald). Accordingly there must be a constant change of the contents of consciousness.

Consciousness has been compared to a mirror in which brain-activity reflects itself ; it is more correct however to compare it to the process of reflection instead of to the mirror itself. The latter owes its effects to its reflecting properties, and the " *conditio sine qua non* " of reflection is a something to be reflected. In the same manner consciousness is inconceivable without contents of consciousness.

In defining consciousness we must do so in a logical manner. The subject matter of consciousness is constantly changing and it is wrong to add to its meaning things of which we were conscious before, but not at the given moment. The attempt to define the conditions under which consciousness arises has been labor lost, as one cannot prove that any activity of the world is unconscious.

It we include under the conception of soul the whole subject matter of the present consciousness, and all that which the ego was once conscious of, the soul must be defined as the sum of all brain activity as it appears in the light of our known inner reflection of consciousness (*Bewusstseinsspiegelung*). If we choose to further add (to its meaning) all the unconscious nerve activities, the conception of soul becomes still greater. At any rate it becomes evident how the conceptions of soul and of nerve activity amalgamate themselves. Our human brain-soul is, however, only a component phenomenon of the universe. It is divine like the universe but not something higher than all other phenomena of the world. It must be admitted that it is the most complicated and highest of the world phenomena, but its organ, the brain, is also the most complicated and highest developed organization of world-matter known to us, so that in this respect as in others, there is no disproportion between brain and soul.

F. then gives a review of the neuron theory and of our

knowledge of brain localization, and characterizes nerve activity in the following manner: A special property of the nervous system is the power of its elements to transmit received impulses rapidly to other elements by an undulating (wellenartige) molecular motion. He proposes to call this motion *neurocym* (Nervenwelle) and to speak of nerve activity as of neurocym activity. The latter may be:

1st, *reproductive*; that is, it may repeat old activities, which by innumerable repetitions have become automatic.

2d, *plastic*, that is, innovating and combining, new combinations; new "neurocym chains" being formed, chiefly by new sensory stimuli. This process is accompanied by subjective and no doubt also objective effort. This we call attention and it is especially prominent in the "reflection of consciousness" (Bewusstseinspiegelung).

Purely automatic, reproductive neurocym activities can be inherited as such and in toto. Our sensory stimulus is sufficient to evolve a whole "chain" of such activities. This is illustrated by the immediate jumping about and skilful picking of grains of the newly-hatched chicken.

Thus we see that the same process of automatism can be reached in two ways, viz., by inheritance in the course of generations, or by habit (repetition) in the course of one individual life.

Complicated automatisms (instincts) can be accomplished with very few nerve elements (complicated instincts of ants who have relatively a large but absolutely a very small brain).

The study of phylogenetic evolution in animal biology confers upon us the conviction that primary nerve activity is plastic, but that when only a small number of nerve elements are present it leads to the formation of one-sided automatisms. But however this may be, the fact is, that these two activities, the reproductive (automatic) and the plastic, differ only relatively; and we can study the gradual transition of the one (plastic) into the other (reproductive) when we learn something that is new to us. The highest plastic activities are: The plastic imagination, the deliberating reason (judgment), and the higher ethic and æsthetic feelings.

In continuing his arguments the author analyzes in detail the meaning of the conception of consciousness. Attention is called to the fact that in hypnotized persons, we can eliminate whole "psychical chains" from conscious remembrance and that *vice versa* they can be made conscious of things of which they were unconscious at the moment of their occurrence. The facts of double personality and of the special state of consciousness which accompanies dreams are further pointed out. This shows us that the expressions "conscious" and "unconscious" are "evidently founded upon erroneous conceptions." What

appears as "unconscious" is frequently only detached from the chain of conscious remembrance. We must conclude, therefore, that there are as many "reflections of consciousness" as there are series of neurocym activities, sufficiently separated functionally or anatomically. We must therefore ascribe subordinate "reflections of consciousness," unknown to us, not only to our cerebrum but to all other departments of the nervous system. This leads to the conclusion that consciousness is evidently a general quality (property) of all living neurons, and also of the nervous systems of animals.

Plants have no nervous system, no neurons; here each cell is independent and represents more an individual of its own than a part of the plant. In speaking of a soul here we must ascribe it rather to the individual cell than to the whole plant.

At this point we have reached the limit of our knowledge. We do not know whether organized beings originate from unorganic substance, or whether life has arisen from physico-chemical processes. But the hypothesis that this is so, seems very probable. Again, the recent investigations in physics and chemistry point more and more to the view that the various forces (electricity, light, heat, etc.) and the various "elements" are actually diversifications of *one* original dynamic and material unity, of *one* primary *potency* (Urpotenz). If the hypothesis that organized life originated from unorganic matter is correct, it follows that all primary properties (Ureigenschaften) of organized living beings (Lebenswesens) consequently, matter and force must be present in unorganic nature. This would imply a general potential animation (Beseelung) of the universe which brings us back to the monistic idea of God.

But of course the "soul embryo" of an organic cell or of an atom cannot possess the complicated associated subject matter of consciousness which the soul of a large brain with its innumerable neurons possesses. There is no great quantitative and qualitative disproportion, however, between the human soul and the soul of animals. Plastic neurocym activity can be proven even in insects. Lubbock has tamed a wasp, Forel a swimming bug.

The higher mammalia are constantly undergoing experiences from which they profit, and in consequence of which they instruct the young to a certain degree. Intimate knowledge of animals makes us recognize individual characters in many of them. We find heroes among the individuals of the animal species; there are aristocrats and proletarians among dogs and horses, etc.

The more closely we study the subject the more vague does the distinction between the human soul and the soul of animals, especially of the higher types, grow, and it is absolutely wrong

to speak of the animals as *automats* in contrast to man as a being possessed with a soul.

It is impossible to do this paper proper justice even in a lengthy abstract ; details must be read in the original which is highly worthy of study. The views displayed, although startling, are based upon sound foundations. The author presents himself as a philosopher, investigator and pathologist. In his philosophical views we can perceive the influence of Herbert Spencer, whose system of philosophy seems to be in harmony with the author's mode of thinking, and in intimate touch with the progress of positive science.

Forel's contribution to the knowledge of the finer organization of the nervous system is very extensive. His name is *involuntarily* associated with that of Gudden, in view of the amount of work he did with Gudden's method and his enthusiastic efforts to secure the recognition of its merits. It will also be remembered that Forel was one of the first, if not the first, to excite the interest of the profession for Golgi's discoveries ; but he was also the first who established the contact theory of the neurons (which is now gaining more and more ground) in opposition to Golgi's anastomosis-theory. The newly acquired anatomical and physiological facts upon which the writer bases his deductions are to no small extent products of his own work. In latter years the author's endeavors have taken another direction ; he has devoted himself chiefly to the study of the phenomena of hypnotism and has greatly enriched science also in this field. It is one of his characteristics to stand up for his convictions even at the risk of being misunderstood and derided. This has shown itself in his stand on the hypnotic question. He has made his influence felt in spite of the opposition met with. He has at any rate convinced us what an important element suggestion forms in therapeutics of any form, and has done a great deal to further our psychological conceptions. This fact becomes evident when we read the paragraph (of his paper) which treats on the various states of consciousness and on consciousness in general. His extreme views on this point which would have appeared quite unnatural a decade or two ago, lose their strangeness in the light of the new knowledge gained.

In conclusion, it may be said that the author has managed the difficult subject of his paper in a masterful manner. His views may perhaps not all be accepted, but we cannot help being impressed by their originality. At any rate, there is enough in them to give ample material for earnest thought and study. Whether right or wrong Forel has the power of making himself felt of exciting interest even where he may excite opposition.

ONUF.

PATHOLOGICAL.

Studies on the Lesions Produced by the Action of Certain Poisons on the Cortical Nerve Cell.

I. Alcohol. H. J. Berkley, M.D. (Baltimore, U. S. A.) (*Brain*, Winter, 1895. Part LXXII.)

PART I.—Sec. I. Experimental lesions produced by the action of absolute ethyl alcohol on the nerve cells of the rabbit's brain.

The author is in unison with Lewis' ideas of the coarse changes produced by the continued abuse of alcohol upon the nerve cell. But he has gone further in his studies and demonstrates not only the condition of the protoplasmic body, but the early changes in the finest twigs of the dendrites and the finest variations of the nucleus and nucleolus.

The brain of rabbits were used for this experimental work. Specimens were hardened either in alcohol or Müller's fluid. For the study of the finer dendrites of the nerve cells, the author has devised a ready method of his own. It consists in allowing the specimen to harden in Müller's fluid, then to cut them up into pieces three millimetres in thickness, and then immerse them in a mixture of a three per cent. solution of bichromate of potash and a solution of one per cent. osmic acid in the proportion of 100 parts of the former to 20 of the latter. In this mixture the specimens remain from three to five days and are then washed for a few minutes in a weak solution of nitrate of silver. They are then put into the staining mixture, which is made by adding 2 gtt. of a ten per cent. solution of phosphomolybdic acid to each 60 cc of a nitrate of silver solution in distilled water. Here they remain two to three days.

With regard to the histology of the absolute alcohol sections from the alcohol brain, the author found in some of the specimens a distinct alteration of the nuclei, chiefly in the disposition, size and irregularity of certain of the nuclear chromophilic particles. In these same specimens few definite lesions could be determined in the blood vessels, with the exception of the perivascular dilatations and hæmorrhages.

With regard to the pathological histology of the rabbit's cortex in chronic alcoholism, a careful comparison with control preparations shows the following differences. The cell bodies and main processes are more even and smoother, the dendrites are broader, the gemmulæ are longer and more numerous, thicker, more feathery, apparently spreading over more lateral surface and are very regular in appearance, while in the alcoholic brain, there is a gap here and there as if some of them had fallen off, or had disappeared. Indeed, the difference is well expressed by the author who calls the normal one in appearance stouter than its fellow. A vast number of the cells show upon their protoplasmic extensions one or more swellings of a

rounded or elliptical form. These tumefactions always appear to begin at or near the free extremity of the dendron. As an essential accompaniment of these tumefactions, is the loss of the gemmulæ. The author found comparatively unimportant changes in the arteries. He is inclined to attribute the lesions found to the direct action of the poison upon the protoplasm. He also believes that the maniform swellings of the dendrites and the loss of the lateral buds are the first step in a pathological process which eventually ends in partial or complete degeneration of the cell structure, and with it the annihilation of the nervous forces produced by the cell.

Only very few of the cells show changes in the corpus. Some of them are described as corrugated from the very roughened appearance of their exterior. The axis cylinders of all the cells of the cortex demonstrated no morbid alteration. With regard to the cerebellum, the cells of Purkinje presented the same alteration as the pyramidal cells, but were striking in their relative intensity. Neither in the cerebrum or cerebellum was there any pronounced change in the supporting elements.

The author concludes his paper by comparing the pathological lesions found with the symptoms found in chronic alcoholism. The muscular disorders he attributes to the irritation of the nerve cells. The anæsthetic and parasthetic symptoms, the ocular and amnesic disturbances to the beginning swelling of the dendrites of the sensori-motor region.

The tremor and incoordination to the involvement of the motor cells and their nuclei. The incomplete dementia comes on as the cell structure becomes more and more degenerate.

All these changes which have been found above, the author claims are also present, varying in degree, in the human brain. That these lesions are or may be capable of being produced by any irritant drug the author does not deny.

The paper is accompanied by excellent illustrations.

A. WIENER.

CLINICAL.

Cases of Sudden Death After Lumbar Puncture.

By P. Fübringer (*Centralblatt für Innere Medicin*, Jan. 4, 1896).—In a paper read before the "Berliner Medicinische Gesellschaft," March 20, 1895, concerning the clinical significance of "Spinal Puncture" in eighty-six cases, the author made mention of the fatal consequences in four of them.

As the literature upon this subject is still somewhat meagre, and the cause of death not a positive one, the author feels that each and every case of this kind should be recorded. Another such a fatal result has again occurred in the author's experience.

A young man suffering from a cerebellar neoplasm died on the same day that lumbar puncture was made. In addition to the history and record of the puncture in this patient, the author makes mention of a similar case reported by Lichtheim. A woman, aged 35 years, suffering from cerebellar tumor, death resulted on the day following the one on which the puncture was made. Lichtheim bids us to be cautious, and believes that after lumbar puncture a positive pressure still remains within the ventricles.

The author, taking into consideration, that in three cases under his own observation, and the one above recorded by Lichtheim, in which death resulted within a space of forty hours; that previous to the puncture an increased severity of the headache existed, and after the puncture a distinct feeling of relief followed, until a renewed increase in the severity of the headache began, and there was a sudden "exitus" of the patient; taking these four cases into consideration, their course and manner of behavior after the puncture, the author has, become very suspicious, and believes that all powerful reasons speak for the probability of a close association between this lumbar puncture and the death of the patient.

With regard to the theories as to the cause of death after lumbar puncture the author is not inclined to give much credence to Quincke's view of aspiration. He considers as very plausible the theory of Stadleman, viz., a pathological narrowing or closure of the foramen of majendie will not allow a rapid emptying of the fluid within the ventricles. As a result of this, the brain, after the fluid has been removed from the subarachnoid spaces of the spinal cord, is drawn and pressed up against the dura at the base and trophic disturbances result.

F—— does not believe, however, that this is sufficient to account for the fatal consequences, but is inclined rather to attribute them to the pressure exerted upon the vital centers in the neighborhood of the medulla. He warns us, therefore, from employing lumbar puncture in cases of brain tumor, and especially cerebellar tumors.

Probably, where the puncture is made repeatedly and only small quantities of cerebro-spinal fluid are removed each time, the danger of this operation may be less. No lasting benefit is to be hoped for.

A. WIENER.

Book Reviews.

A MANUAL OF THE MODERN THEORY AND TECHNIQUE OF SURGICAL ASEPSIS. By Carl Beck, M.D., Visiting Surgeon to St. Mark's Hospital, and to the German Polyklinik of New York City, etc. W. B. Saunders, Philadelphia, 1895.

This volume of 300 pages is a valuable addition to "Saunders New Aid Series." It contains 65 illustrations in the text and 12 full-sized plates; and the plates, illustrations and typography are all excellent.

The author has been a teacher of graduates in medicine for some years, both in the Post-Graduate Medical School and at St. Mark's Hospital; and the thorough and conscientious manner in which he has carried out his ideas of aseptic surgery is one of his strong points.

As the author says in his preface, "Even the most excellent surgical text-books lack full and detailed descriptions of the theory and technique of surgical asepsis," and there is therefore a field for this class of literature. This fact is especially impressed upon us when we consider the vast number of men in the profession who have practically no training in technique, and yet who are forced by circumstances to perform surgical operations of greater or lesser gravity. These men—most of them at least—are anxious to learn the latest ideas and developments and yet are unable to find *definite descriptions* of technique in the large text-books. To these men, therefore, this "Manual of Surgical Asepsis" will come as a boon, and to many others whose advantages have been better it will be welcome.

The author strongly emphasizes certain points which are usually slighted by writers. To men of training, such points as the technique of disinfection of operator, assistants, patient, dressings and instruments, are matters of such routine and habit that they forget that others are not so well trained as they are, and are therefore hungry after detailed knowledge; this they will find in the chapters on "Prophylactic Disinfection," and "Disinfection of Instruments and Dressings."

"The Influence of Microbes" is the first subject considered; and, starting with definitions of *sepsis* and *asepsis*, the author describes the most important (surgically speaking) micro-organisms, and the methods of their cultivation. "The Importance of Asepsis" is dwelt upon, and the use of so-called antiseptics deprecated. The author says: "It is simply the duty of every surgeon to substitute asepsis for antiseptics, and to utilize the latter only as a part of the aseptic method." He especially condemns carbolic acid as being dangerous as well as unreliable, and prefers to use bichloride of mercury when a chemical is needed before operation. During operation no solution other than normal saline solution, or plain boiled water; and after operation he thinks "iodoform is the ideal antiseptic drug." Its value in the treatment of tubercular joints, tubercular peritonitis, hemorrhoids, varicocoele, etc., etc., is touched upon.

Minute directions are given for the disinfection of the patient, operator, assistants, dressings, instruments, etc., and the author de-

scribes many sterilizers and other apparatus, among which are his "Folding Sterilizer" and "Folding Improvised Stand," both excellent inventions.

The author's penchant for the use of "moss-board" is well known and he takes occasion to dilate largely upon its advantages as an absorbent dressing, and as a splint; saying that it is "the most desirable dressing material next to gauze," and "it is indeed an ideal splint."

Under the heading "Sterilization of Catgut, Silk, etc.," the statement is made that "more than one hundred methods [of sterilizing catgut] have been advised, but the great number offered is always the best proof of the weakness of each." He describes several methods though, and shows cuts of the necessary apparatus for sterilizing and keeping catgut sterile according to these methods.

"The Aseptic Operating-Room" is described, but, as the author says, "success depends not upon the marble floor of the modern operating-room, but upon the care with which the principles of asepsis are carried out."

In the treatment of wounds the aseptic principles are carefully considered, and the best methods for obtaining primary union—"the ideal toward which every surgeon strives in treating wounds"—are described. At the same time "aseptic open-wound treatment" is strongly advocated when a wound has become contaminated by infection; as for instance, an infected surgical wound, and "all wounds other than those inflicted by the surgeon;" the author stating that "the only fresh wounds that are really aseptic, in the true sense of the word, are those made in healthy tissues by aseptic instruments in the aseptic hands of the surgeon." For the treatment of contaminated wounds he recommends that all necrotic tissue be trimmed away and that free drainage be then established by loosely packing the wound with iodoform gauze; the cavity left gradually filling in with healthy granulations. Drainage tubes are condemned, and sterilized moss-board highly recommended for purposes of absorption and immobilization.

The chapter on "Renewal of Dressings" will be especially interesting to the average practitioner, as clear and minute directions are given on these points; as will also the chapter on the "Technique of an Aseptic Operation."

Under the heading "Aseptic Injection," the importance of carefully observing aseptic precautions in giving hypodermic injections of all kinds is dwelt upon, and the value of hypodermic injections of solutions of iodoform, especially in tubercular affections, is emphasized.

Exactly why the subject of "Anæsthesia" should be considered at length in a "Manual of Surgical Asepsis," the reviewer fails to understand, at the same time the subject is well handled and the best methods of administration ably described.

The work closes with a chapter on "Asepsis in Private Practice," in which the feasibility of performing perfectly aseptic operations in private (yes, and even in tenement) houses is shown, provided the proper preparations are taken

GAZZAM.

Correspondence.

CLAIRVOYANCE AND THE SUBLIMINAL SELF.

Mr. Editor :—Kindly permit me a word in reply to Dr. Hurd in the January number of your journal; and as he seems to find some difficulty in discovering my meaning, I will endeavor in the present communication to make it clear to his comprehension.

Dr. Hurd desires definitions. By the subliminal self I do not mean an *obsession*, nor an *intrusion* by any foreign intelligence or personality into the *ordinary* personality; consequently it has no relation to witches, spiritualism, nor with supernaturalism in any form; and consequently I do not stand sponsor for them as Dr. Hurd insinuates. I simply mean that besides the ordinary consciousness or personality with which are associated certain traits of character, sentiments, modes of thinking, memories, and a personal history, which together constitute a *usual personality*—that by which we are known and which is active in the ordinary affairs of life, there exists, certainly, *demonstrably* in some, and probably in all, *another consciousness* with which are often associated other and sometimes entirely different traits of character, sentiments, modes of thinking, memories, and also a different personal history. I am not contending about names for this second condition; call it the subconscious or subjective mind, another stratum of consciousness, a second self—or, the name by which it is generally known amongst those who for the past ten years have been studying its action—the subliminal self—a consciousness of self beneath the threshold of the ordinary consciousness, but associated with it and forming part and parcel of the one individual. But this consciousness comes to the surface and into action only *occasionally*—notably when from various causes the ordinary consciousness is in abeyance, or is blotted out, as in physical weakness, sickness or shock, in ordinary sleep and in the hypnotic condition or trance. But while I do not contend about names, I do contend that throwing this condition, by whatever name it is called, bodily into that convenient catch-all of unclassified nervous diseases, *hysteria*, is neither scientific nor true; not that persons affected with hysteria do not sometimes exhibit this condition, but because persons in perfect

health also exhibit it and also those affected with diseases having no relation to hysteria.

Dr. Hurd asks, "What is clairvoyance?" and then in a ponderous, round-about way he gets at the idea, namely, that it is the perception of objects, facts or ideas, by some means other than by the ordinary use of the physical organs of perception—facts and ideas which never were any part of the individual's ordinary consciousness; and he goes on to say: "If this be his contention, he may well quote in opposition the names of Carpenter and Wundt, and in fact nearly the whole scientific world."

I am sorry to say this is the exact truth; *nearly* the whole scientific world *is* in opposition, but *not the whole*; a portion of the scientific world has seen examples and convincing proof of clairvoyance, and another portion believes it on what it deems sufficient evidence. A word here concerning Huxley's canons for the reception of evidence, and Carpenter's three divisions, denoting what sort of alleged facts *may* be received and what *must* be rejected. In a word, the facts which may be received on sufficient evidence are such as although "not conformable to our previous knowledge," still are not absolutely in opposition to what we deem the established laws of nature; while those which must be rejected, in opposition to the best of evidence, even that of our own senses, are alleged facts which "are in opposition to what we deem the established laws of nature;" there some trick or imperfect observation must be supposed to exist. Now I wish to say that science has been constantly violating these canons, and has been obliged to revise its theory and enlarge its conceptions of what constituted the "established laws of nature," and to accept facts not only beyond but entirely in opposition to its previous conceptions of these laws. It did so when it finally accepted the "alleged fact" of the motion of the earth; it did so when it accepted the nature and significance of fossil forms of life; it did so when it acknowledged the alleged fact of the existence of animal life—as for instance, live toads—in geological strata, hundreds of thousands of years old; it has done so within the past few weeks in accepting the alleged fact that a coin can be photographed while enclosed in a box made of wood an inch thick. The probability or even possibility of a zebra or even a centaur appearing "somewhere in Piccadilly" is a bagatelle compared with the amazing changes in the conception of nature's laws which these facts have compelled. In the same way thought transference, clairvoyance and intelligent automatism generally demand an extension of the laws of nature regarding the action of mind, beyond our former and usual conception of them, and a corresponding revision of our theories concerning them.

As regards the authorities which are cited in my former

letter as in favor of clairvoyance, but which Dr. Hurd declares are not, namely Prof. Charles Richet and Dr. Azam, I will simply allow them to speak for themselves. After describing in detail a long series of experiments in clairvoyance, M. Richet says: "We have consequently to admit the existence of some faculty entirely unknown to us—lucidity or second sight—whichever name is applied to it, which is met with quite exceptionally in certain subjects and even with them quite irregularly and with no possibility of determining the conditions of its occurrence." Or if Dr. Hurd prefers M. Richet's own words he will find the same sentiments in a paper published in Vol. V. of the Proceedings of the Soc. for Psych. Research, p. 166.

"Je dirai dans certains états psychiques, chez un petit nombre de sujets, il existe une faculté de connaissance qui diffère absolument de nos facultés de connaissance ordinaires. Alors il n'y a pas d'espace, ni temps, ni objet matériel interposé. L'aimant attire le fer à travers une cloison opaque. De même le sujet lucide discerne le grossier contour d'un dessin à travers une enveloppe opaque."

Again, on the following page, and here I will take the liberty of translating: "There exists in certain persons at certain times a faculty of acquiring knowledge which has *no relation* to our ordinary faculties for the acquisition of knowledge."

Regarding Dr. Azam, I will say this: The French *Société Psychologie Physiologique* included such names as Janet, Ribot, Richet, Sully-Prudhomme and Taine, and was presided over by Charcot. In 1888 two papers were presented to the Society by Dr. Dufay, of Blois, giving in detail several cases of clairvoyance observed by himself and coming clearly under our definition. The subject was put in the hypnotic condition by his friend Dr. Gerault. One of the cases related to a most striking event—the death of a neighbor and friend of the clairvoyant—then transpiring in the Crimea, which was described by her in the most vivid and pathetic manner; the other related to the sickness of a French officer then in Algiers. The first case was verified by the next mail from the Crimea, the other immediately, by a letter just received from the officer, then in Dr. Dufay's possession, but which had remained unopened for the purpose of making the experiment.

In these papers Dr. Azam also writes as follows: "I myself, and I believe many other medical men have observed cases of this or a similar nature; I will quote two in which I think I took all necessary precautions before being convinced of their truth." He then goes on to relate two clear cases which had come under his own observation.

These papers were published in the *Revue Philosophique* for September, 1888 and February, 1889, as a part of the proceed-

ings of the Society. As regards Prof. Pierre Janet, (not Paul) his papers, like those of Richet, form a part of the proceedings of the Soc. for Psych. Research ; and while they relate mainly to hypnotism and especially to hypnotism at a distance (one-third of a mile), which is a *bête noir* of almost equal magnitude with clairvoyance, still like those of Richet they imply distinct personalities in the sense in which I have defined that condition ; and it is "facts" that we are contending for and not this or that person's interpretation of them.

Dr. Hurd's sneering reference to the work of the Soc. for Psych. Research cannot be passed in silence. The zeal of some persons to exhibit their scientific orthodoxy is commendable even if sometimes grotesque. Like the good orthodox Pharisee they stand at the corner of the street and with a loud voice thank God that they are not like other men—believers in clairvoyance, phantasms and veridical dreams, nor even as these psychical researchers. It might, however, with regard to the S. P. R. strike some people that the active co-operation and sympathy of such men as the late Prof. Balfour Stewart, the Right Hon. A. J. Balfour, M.P. and F.R.S, Professors Sidgwick, Barrett, Macalester and Lodge, in England ; Beaunis, Liegeois, Bernheim, Richet, Janet and others, in France ; Professors James and Bowdich, of Harvard, Langley, of the Smithsonian Institution, Stanley Hall and many others in this country would be a sufficient guarantee that the work of the Society would at least be conducted according to scientific methods, would not be trifling nor puerile in character, nor be influenced by superstition nor supernaturalism, even though lacking the sympathy and valuable assistance of Dr. Hurd.

We are treated to some high-sounding phrases concerning expert testimony in Dr. Hurd's letter ; in part they are truisms and the rest is bosh. It is not always with regard to facts that expert testimony is most needed—it is common sense also that is here absolutely required, and also an unprejudiced mind ; but it is especially in the interpretation of facts that the opinion of the expert is needed, and then it must be an expert of the right kind. Blacksmiths and plowmen knew the "fact" of globular, slowly moving lightning or electricity long before scientific societies recognized its existence ; quarrymen and miners saw live toads come out of solid rock from geological strata, twenty or a hundred feet below the surface. The solid sense of the healthy out of door laborer, together with his favorable position for observation, was fully as trustworthy in these cases as the observations of near-sighted academicians who had not seen anything, and with a theory which might get the bottom knocked out by the new fact.

So highlanders all over the world with their clear air, hard lives and simple fare, whether in Scotland or Greece, the Him-

alayas, or the high regions of America, knew the "fact" of clairvoyance or second sight from the earliest times. Horace had not generalized on this subject when, as a bit of flattery to his friend Julius he wrote, "Portentaque Thessala rides;" he wrote like some others upon a subject of which he knew little, and it was a pity, considering how beautifully he wrote about matters with which he was acquainted.

It is in the interpretation of facts that the expert is specially needed; and then we call for the highest authority in *that department of knowledge to which the fact relates*. We would not go to Huxley, if living, for an explanation of a theological fact, to Ruskin for an opinion on engineering, to Lord Salisbury to elucidate the Monroe Doctrine, nor to Dr. Hurd to pass judgment upon duplex personality or clairvoyance, for the simple reason that these men, however eminent they may have been or may be in their own special departments, have given no evidence that their minds were so constituted that they are or could ever become experts on these particular subjects.

Dr. Hurd asserts that my historical argument is worthless; but then he also asserted that my modern authorities were worthless for my purpose. I think I have shown that in the latter case he was mistaken—did space permit I could easily show that he is equally mistaken regarding the historical argument; however, I only use it as a preparation or introduction to the argument from present observation and experiment, and for that purpose it surely is of value.

Dr. Hurd on his side quotes Horace and Lucian for authorities in psychology. Horace I have referred to; I will only add that with all his flippancy regarding the supernatural, when he was dry and comfortable, when once he had a narrow escape from death by shipwreck, he hastened to ascribe his deliverance to supernatural interference on his behalf. But Lucian is his champion psychologist, and it is to his *Alexander the False Prophet* that, no doubt with the kindest intentions, he refers me for "facts." Lucian was a satirist, and apparently doubted whether there was any such thing as truth; at all events he made use of it very sparingly. He was a story teller, and his facts are exactly on a par with those of Jules Verne—not even *intended* to be believed. He may have been taken in by Alexander, if indeed that personage ever existed, and so for spite have told some truth about him.

But allowing that Alexander existed and was the prince of humbugs, what bearing has it on the "facts" of modern psychology? There were doubtless imposters then just as there are now, but that does not invalidate well-authenticated facts.

Ancient writers in dealing with alleged facts such as the oracles, dreams and portents had no alternative; either they must accept them as supernatural or brand them as humbug.

The object of psychical research has been to find out first what are facts amongst the phenomena presented and then to find a natural—as opposed to a supernatural interpretation of them—and a clue to this interpretation it finds in the subliminal self and its peculiar powers.

But if Dr. Hurd insists on ancient authorities, why confine himself to the professional satirists, Horace and Lucian? Why not have something to say about the historians and philosophers? Herodotus gives more than seventy examples of oracular responses, dreams and portents which he affirms were literally fulfilled; Livy gives more than fifty, Cicero many striking cases, and Xenophon, Plato, Tacitus, Suetonius and a host besides all indicate their strong belief in the *facts*, however much we may differ from them in their interpretation of them. Besides, practically, the Jews, to whose belief in dreams Dr. Hurd sarcastically refers, were for 2,000 years governed by prophets and the answers which the priests received to their inquiries on all important matters by Urim and Thummim, and the Greeks and Romans by the responses of their oracles; now whether these responses were, as they believed, from a supernatural source or as we believe, from the subliminal self of the person giving the responses, these nations in the main were quite as well governed, quite as prosperous, became quite as cultivated, had laws, arts and institutions which we find it convenient to copy, and in every way they got along quite as well, so long as they kept to that mode of seeking knowledge, as modern nations, with their much, and justly praised science, their class materialism and their liquor saloon politics.

Dr. Hurd's assertion that double personality is in its essence a matter of the exaltation of certain regions of the cortex, and his inhibition theory are just as baseless as his other assertions; it is simply a would-be learned way of still more deeply befogging a subject which is already sufficiently obscure.

There is not the slightest proof that there is any relation of cause and effect between this alleged condition of the cortex and the changes in personality here under consideration. The whole theory is only inferential, and entirely without solid grounds for the inference. The poorest ghost story in the whole collection of the S. P. R. is well established compared with this theory.

But the climax to Dr. Hurd's argument is "*Fudge!*" and in answer I will only say that powerful as that argument has been in the past, to-day it is only the argument of ignorance to the ignorant. No man to-day who has any respect for his reputation for intelligence can afford to use their argument, and no intelligent man can for a moment accept it. A great number of the very best minds in every civilized country, men who are leaders in every department of science, philosophy and art are seriously

and systematically engaged in thinking and working upon problems just such as are discussed in the paper, an abstract of which, published in the last July number of your journal has caused this correspondence. They know that many most interesting psychical phenomena occur, that they are *facts*, and facts for which science has as yet found no explanation.

Believe me, brethren, these subjects are neither baseless, barren, nor puerile, but dignified and worthy of your serious consideration. But whether you consider them or not, the "Fudge" argument is a disgrace, and amongst persons of intelligence, whether in or out of our profession, it cannot longer prevail.

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THE
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Original Articles.

HEMIPLEGIA IN TYPHOID FEVER.¹

BY WILLIAM OSLER, M.D.,

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I SHALL speak to-day of two cases of great interest, illustrating a rare form of paralysis in typhoid fever. First, let me call your attention to a diagram which I have placed on the blackboard of the forms of paralysis most commonly met with during and after the specific fevers. As you see, they are very varied in their symptomatology, and varied, too, in the nature of the local lesion.

	SYMPTOMS.	LESION.
Paralyses during & after fevers.	Hemiplegia.	{ Thrombosis of veins of meninges. Thrombosis and embolism of cerebral arteries. Hæmorrhage.
	Paraplegia.	{ Meningo-encephalitis. Myelitis.
	Diplegia.	{ Neuritis.
	Monoplegia.	{ Neuritis.
	Local paralyses.	{ Polio-myelitis. Neuritis. { Toxic. Myositis. { Pressure.

We can divide the cases into those with central lesions, either of brain or cord, and those with peripheral lesions, affecting the nerves and muscles. In diphtheria, small-pox, scarlet fever, measles, and typhoid

¹ A clinical lecture at the Johns Hopkins Hospital, Dec., 1895.

fever, the patient may become hemiplegic at the height of the disease, a condition which may be preceded by convulsions. In reviewing a large number of cases of hemiplegia, particularly in children, one meets with many instances in which the paralysis has developed during the course of one or other of the infectious diseases; thus, of the one hundred and twenty cases which I analyzed from the Infirmary for Nervous Diseases, Philadelphia, and the Institution for Feeble-Minded Children, Elwyn, there were sixteen with this history.

The anatomical lesion in these cases is not known in all instances. In a certain number, hæmorrhage has been found; in others, thrombosis of the cerebral arteries, or of the meningeal veins; while an acute encephalitis may exist.

You will find an exhaustive consideration of the whole question in the address by Dr. J. J. Putnam before the Third Congress of American Physicians and Surgeons, published in Vol. III. of the Transactions.

I have recently given in full detail our experience during the past six years of paralysis during and after typhoid fever.²

Of the nine instances under observation five were monoplegias, or local paralysis, and in four all the extremities were involved—diplegia. In every one of these cases the lesion seems to have been a neuritis. You will notice that I have placed among the lesions causing local paralysis, myositis. I have done so because we have had several instances in which the disability was associated with great pain in the muscles, with positive swelling, and great tenderness on pressure as though the trouble was within the muscle itself. The two cases which I shall first show you illustrate one of the most serious of the accidents of typhoid fever.

CASE I.—*Protracted attack of typhoid fever; in the tenth week, while the fever still persisted, sudden convulsions; hemiplegia, with aphasia.*

Annie F., aged 7, admitted to the medical wards October 3, 1895, complaining of inability to use the right hand.

There is nothing of note in the family history. With the exception of measles at four, she has been unusually strong and well; and has always been a very bright, intelligent child.

² Studies in Typhoid Fever, Johns Hopkins Hospital Reports, Vol. V.

During the first week of April of the present year, the patient had much malaise with headache and debility and epistaxis. On the 6th she went to bed, complaining of pain in the abdomen, fever and diarrhœa. She had a slow and protracted attack, the diarrhœa and fever continuing for more than ten weeks. She seemed to be doing well until Sunday, June 3, when she was seized with violent convulsions, which were confined to the head, the right arm and leg. She was unconscious. The attack came on in the morning, and in the afternoon the movements ceased in the head, but movements of flexion and extension continued in the arm for nearly two days. It was then noticed that the right side was completely paralyzed, and the child was unable to move arm or leg. The face was also involved. With the hemiplegia there was total loss of the power of speech, and she remained aphasic for seven weeks. She improved, but very slowly. Voluntary movements were first noticed in the right leg six weeks after the convulsion. She has never regained power in the arm, but she has gradually begun to talk again. The child has now, as you see, the attitude and gait characteristic of hemiplegia, which has partially recovered. You noticed as she walked into the room that she limped, the right leg being dragged, with the foot inverted. You see, too, that she has worn away entirely the outer portion of the sole of the right shoe. Crippled as she is, yet she gets along very well and is able to run quite briskly. You notice as I throw this coin into the arena, that when she attempts to pick it up, the right arm is extended from the side and semi-flexed, but she puts the left arm and side forward, and grasps the coin with the left hand. When in repose the right arm is held close to the side, the wrist flexed, and the fingers also flexed. She can voluntarily flex and extend the arm at the elbow; can lift the hand to the head, but the power of extension in the wrist and the power of extension in the fingers, and of grasping with the hand are almost completely lost. When making any exertion, as in running for an object, the paralyzed arm is held out from the side, but there are no irregular movements in it. The condition of the face has improved very much since we first saw her early in October, but there is still paresis of the muscles.

In one other respect, too, she has got very much better. You notice now that she can name objects cor-

rectly, recognizes a knife, a watch, and a cent, but is confused somewhat between a cent-piece and a five-cent piece. Her sister tells us that in the matter of speaking the improvement has been quite rapid of late, and, indeed, she says a great many more words now than she did when she came under observation early in the session. She looks also bright and intelligent, and evidently understands what is said to her.

Briefly, then, this child is suffering with hemiplegia which followed a convulsion in the latter part of an attack of typhoid fever. She is recovering the power of speech and the paralysis of the face and of the leg is better, but the arm remains quite helpless and is becoming spastic.

As not infrequently happens, when one unusual case appears, another is certain to follow, and I am able to show you here a second instance of hemiplegia developing during typhoid fever in a man who has just applied for admission to the hospital.

CASE II.—*Severe attack of typhoid fever in March, 1895; at the end of the second week, without convulsion, slight hemiplegia, which persists.*

W. H. B., aged 25, clergyman, was admitted to the hospital November 30, complaining of paralysis of the left arm and leg.

His family history is good. Patient was not at all strong as a child; but was very well as a young man and while pursuing his theological studies.

On March 10, 1895, he went to bed with headache, fever, and diarrhœa. Gradually all the features of a very severe attack of typhoid fever developed, with much delirium.

On March 24th the paralysis developed suddenly without convulsions. There was also, Dr. R. K. Kneass informs me, no aggravation of the delirium following the attack.

He had no difficulty in speaking, there was no trouble with either rectum or bladder. He had a very protracted convalescence. Throughout the summer there was a gradual improvement, so that about July 1st he was able to stand and began to walk. The power over the leg muscles has returned more rapidly than in those of the arm. He has never regained any power in the fingers. There has been a steady gain in weight since his illness. This is the history of the case as obtained by Dr. Thomas, who first saw him, and from Dr. R. K.

Kneass, who kindly wrote to me about the original attack.

You noticed as the patient came in that the attitude and gait were those typical of hemiplegia. The left leg is dragged, the arm is held close to the side, flexed at the elbow, and the hand flexed.

He is well nourished, the face looks pale, but the color of the lips is good. There is no trace of paralysis of the facial muscles, and the eyes are normal in every respect. The left arm can be moved at the shoulder and elbow, and slightly at the wrist in flexion. The hand cannot be extended. The power of pronation and supination is lost. There are only very slight movements of extension of the fingers. The muscles of the arm are very thin, and the interossei are wasted. The left leg can be moved freely at the thigh and flexed and extended at the knee. The feet can be flexed and extended slightly. Movements of eversion and inversion are better performed. The deep and superficial reflexes are everywhere exaggerated on the left side. The ankle clonus is very readily to be obtained. Sensation appears to be perfect.

An interesting feature, not noticeable at first, is the occurrence of wide, irregular, choreiform movements on attempting any voluntary effort with the left arm. The patient's mental condition is excellent.

As I have already stated, hemiplegia in typhoid fever is exceedingly rare. Even in children, in whom hemiplegia is a more frequent complication of the specific fevers, it is very uncommon. Of the one hundred and twenty cases which form the basis of my monograph on the Cerebral Palsies of Children, there was no instance of hemiplegia following this disease. Of the one hundred and sixty cases collected by Wallenberg, four only occurred in typhoid fever. In a somewhat rich experience in typhoid fever no other cases of the kind have ever come under my observation. In the "Clinical Society's Transactions" (Vol. XXVI., 1893), Dr. Francis Hawkins has collected seventeen cases from the literature. Three of these occurred in children under fifteen years of age. In the fourteen cases in which the data were given, the time of onset was in the second week in one case, during the third week in six cases, during the fourth week in two cases, during convalescence in five cases. The right side was paralyzed in twelve of the sixteen cases in which the side was men-

tioned. Aphasia accompanied the hemiplegia in twelve instances. Of the seventeen collected cases only two died, and in both of these a thrombus was present in the middle cerebral artery. Probably this is the usual lesion in typhoid fever, and, as you know, in this perhaps more than in any other disease, there is a tendency to the formation of thrombi in the arteries. Endocarditis is so rare that hemiplegia from embolism must be very uncommon.³

We had this year a sad illustration of the occurrence of thrombous formation in the cerebral arteries in typhoid fever. The case is given in full in our recently issued "Studies in Typhoid Fever," but I give here a brief abstract since it bears directly upon the question.

The patient was a young man, aged 22, of good family history, who was admitted April 24, 1895, on the fourth day of an illness, in which he had headache, pain, and fever. On admission the temperature was 104° , but sank on the following morning to 100.7° . For the following three or four days the temperature range did not reach the bathing point, 102.5° . On the 27th rose-spots were seen, and the spleen was palpable. On the morning of the 28th the temperature was 99.3° and in evening 100° , and he seemed to be doing well in every respect. At noon on the 29th, as we were making the visit in the wards, Dr. Thayer was hurriedly called, and he found the patient in some distress, complaining of uneasy feelings in the head. The pupils were dilated, and in a few minutes he had a short, sharp, general, clonic convulsion, beginning almost simultaneously in both arms. The eyes showed marked conjugate deviation to the left and upwards, the head also being drawn somewhat to the left. For about an hour the convulsions were repeated at short intervals. Morphia was given hypodermically, and chloroform administered. They then became less intense, and finally ceased altogether for several hours. During the convulsions there was profound unconsciousness, and in the severer ones great embarrassment of the respiration, so that he became quite livid. In the interval the patient appeared to be conscious, and spoke to those about him, and seemed to understand questions, though he had a confused, frightened look. At 5 P. M., the convulsions recurred with great severity, and in spite of inhalations of chloroform,

³ "John Hopkins Hospital Reports," Vol. V., page 465.

they recurred at intervals until ten o'clock in the evening, when in a severe one the patient died. The convulsions were general, but the more intense movements were on the right side.

The autopsy showed a marked hæmorrhagic enteritis affecting the ileum, which presented here and there small ulcers in Peyer's patches. The heart was normal. The following is a description of the lesion in the brain by Dr. Flexner: "There was an area of thrombosis in certain of the vessels on the convolutions of the left side. At the time of the autopsy this was seen to involve the branches springing from the middle cerebral artery; but at this time the dissection was not completed. Subsequently in the formalin hardened specimen it was seen that the thrombi were situated in the ascending parietal and parieto-temporal branches of the middle cerebral artery. The meninges over these vessels contained small hæmorrhages, and the brain substance corresponding to them, while not softened, showed small extravasations of blood, although the surrounding tissue was quite firm. Small, but quite extensive punctiform hæmorrhages could be seen to occupy the cortex and adjacent white substance in the immediate neighborhood of the thrombosed vessels. These areas extend sometimes for a distance of two cm. (usually toward the convexity) from the vessels.

"The internal carotid artery was free from thrombosis, as likewise the Sylvian branch. The ascending parietal and parieto-temporal arteries, including at the points of their origins in the middle cerebral artery, were occluded by an adherent, partly decolorized, and quite firm thrombus. More recent dark thrombi were traceable into the branches of these arteries; for example, into the branches running in the Rolandic fissure, the sulcus between the ascending frontal gyri and the ascending frontal convolutions, and the branches supplying the temporo-parietal region generally. The inferior external frontal artery, and the arteries of the anterior perforated spaces were free from thrombi.

"On section of the brain there were no gross anatomical lesions. The ventricles were not dilated.

"Cultures of typhoid bacilli grew from different organs."

There is no possibility of perfect recovery in these two patients. The little girl will, in all probability, regain completely the power of speech. In both cases

there will be some additional improvement in walking. In the matter of prognosis in recent cases, it is worth noting that of fourteen of the cases collected by Hawkins, in which the result is given, nine recovered completely.

These upper motor segment paralyses in the fevers are fortunately exceptional and rare. In a much larger series of cases the lower motor segment is involved and the picture is of a spinal or neuritic paralysis. The lesion may be either central, involving the grey matter of the cord to a greater or less extent, or peripheral, involving the nerves of the extremities, more rarely those of the eye and of the palate.

Gowers states that anterior polio myelitis is more frequently secondary to typhoid fever than to any other acute specific disease, adding, however, that when the onset is subacute the symptoms are, no doubt, due in many cases to a multiple neuritis. The very full report given by Bury of cases of paralysis following typhoid fever (in the monograph by Ross and Bury on peripheral neuritis), does not, however, bear out this statement. In a great majority of all the cases there noted the condition had been evidently a peripheral neuritis. It is stated that some cases have presented the picture of an acute ascending paralysis, and death has followed in a few days; but it may be that even in these instances with the type of Landry's paralysis the lesion is a peripheral neuritis. The two cases of ascending myelitis described by Raymond (*Revue de Medicine*, 1885), both of which showed marked changes in sensation, as well as progressive muscular debility, and which recovered rapidly, would nowadays certainly be regarded as neuritis. There is less doubt about certain cases of monoplegia and of local paralysis; as in the case reported by Shore (*St. Bartholomew's Hospital Reports*, Vol. xxiii), in which there was acute myelitis of the anterior cornua from the third to the eighth cervical nerves.

For the purpose of comparison I show you a third case, illustrating the neuritic form of paralysis in typhoid fever. From his general appearance you can easily see that this patient has been through a severe ordeal. He has been in the private ward for exactly two months, and is now, as he would express it, as long and lank and brown as the Ancient Mariner. He is, however, convalescent, and has consented to come

before you to day that you may see the remnants, at least, of a complication which, for a time, caused us great uneasiness.

I will first read you his history. The clinical summary is as follows :

Severe attack of typhoid fever; in the fifth week, pain in right arm and gradual loss of power in arm and hand; in sixth week, loss of power in both legs without pain; gradual recovery.

A. B., aged 26, one of the associate professors in a New England college, was admitted August 30, 1895.

There is nothing of any special moment in his family history.

Early in August he paid a visit to the Eastern Shore, at which time he was quite well. On the 16th he began to complain of headache and pains in the limbs. On the 24th he noticed for the first time fever in the evenings. His appetite, however, was good until about four days before admission. He has had no bleeding from the nose. He has been thoroughly purged with calomel. For a week he has had a good deal of tenderness in the abdomen.

On admission, the features of typhoid fever were quite well marked. There were rose spots and enlargement of the spleen. For the first week the temperature ranged from 100 to 105°.

On repeated examinations of the urine during the first month he had slight traces of albumin and an occasional small hyaline cast.

About the 21st of September the patient began to complain of pain in the right arm. It was difficult to get from him the exact location. He winced when the shoulder was touched, or the arm, or the elbow. Movement of the arm was very painful, and pressure on the elbow or shoulder, or on the arm caused him much pain. There was no swelling of the joints. He complained, too, that the fingers were numb and stiff. During the next two or three days this condition became more aggravated. The temperature ranged from 98° to 102°.

On the 24th of September he complained that he could not move his legs well, and that they were stiff, but he could move his feet and toes readily. On this day, however, there was distinct wrist drop on the right side. He could neither extend the fingers nor the wrist. It was impossible to fix accurately the point of most pain about the arm. He winced when the humerus was grasped, but there was no special tenderness over the

ulnar nerve or along the brachial cords. The extensor surface of the right arm seemed a little swollen in comparison with the left. For the next few days he did not complain so much, but there was almost complete loss of power in the right arm.

On the 30th the pain was very much less. He could neither lift the right arm from the shoulder joint, nor flex on extend it at the elbow. There was complete wrist drop, and he could only just move the fingers. The legs could not be drawn up, nor could he move the toes of either foot. The muscles were flabby and greatly wasted from the fever, but they were not tender.

There was slight improvement in the paralyzed limbs. He could move the hand and forearm, and the wrist could be slightly extended. The grasp, however, was scarcely perceptible. There was still deep-seated tenderness in the muscles.

On October 7, he could not lift either leg from the bed; the feet were in the typical position of bilateral foot drop. There was no tenderness in the muscles or along the nerves; no paræsthesia; the sensation was normal.

October 10 the note was: "He cannot extend the fingers. He can flex the arm at the elbow, but it falls over at once. The left hand and arm are not and have not been affected. He can draw up the legs slightly at the hips. There is still complete foot drop."

During the last few days he has improved very rapidly. He can extend the hand and move all the fingers, but the grasp is very feeble. The legs can be drawn up at the hips and flexed at the knee, though there is still quite evident bilateral foot drop. He can, however, move the toes a little. The rapid improvement within the past few days is a very favorable omen in the case.

The distribution of the paralysis in this patient is quite unusual. In the paper already referred to, you will find full details of the nine cases of neuritis during and after typhoid fever, which have been under observation in the hospital during the past six years. The prognosis is usually good, and in the case before you the improvement of the past ten days has been so marked that probably his recovery will be rapid.⁴

⁴ With systematic friction to the arm and legs the power returned within a few weeks.

A CASE OF FATAL CHOREA.

REPORTED BY FRANK R. FRY, M.D.,

St Louis, Mo.

THE following are the notes of a case of chorea which terminated fatally after being under my observation from December 29, 1895, to January 2, 1896,—five days.

Mary S., age thirteen and a half years, blonde, large and well-developed for her age.

Previous history.—Six weeks before, the mother had first noticed the choreic movements. She soon discovered that the left hand and foot were most affected. Her description was that of the onset of an ordinary chorea. A homœopathic practitioner had charge of the case until I was called. He seemed to have used remedies in a homœopathic way throughout. The movements slowly but steadily grew worse. Just one week prior to my first visit, the mother noticing the child unusually restless in her sleep, went to her bed, placed her hand upon her forehead. She awoke with a start. From that time the chorea had been very severe. The patient had remained in bed, rested poorly and taken little nourishment; had been feverish, calling frequently for water.

Before she took to bed the mother thought that she occasionally had fever, and on some days she was droopy. But for the most part she kept in good spirits, was always amiable, trying to assist in the domestic duties, in which respect and in needle work she was very proficient for one of her age. She had also made good progress at school. She had occasionally complained of rheumatoid pains in the legs, but they were never an important feature.

Clinical history.—The movements were very severe, involving face, neck, trunk, and extremities, all about equally. She lay in the centre of a large bed, banked about on all sides with pillows. The administration of nourishment was extremely difficult on account of the constant and severe movements. Deglutition did not

seem much impaired. The patient declared that she was hungry and patiently took what was given her in small amounts—always fluid. When questioned she insisted that she had no pain, that she was very tired, and asked for something to rest her. It had become impracticable to use a night-vessel, pads being used to receive the excreta, which were not passed involuntarily. The sensorium was clear, and although articulation was difficult and very imperfect, she made all her wants known to her mother. She occasionally became somewhat impatient, but her conduct was surprisingly rational and considerate. On awakening from sleep she had occasionally seemed momentarily delirious or dazed.

There was but little change from the above condition until the last day of her illness. Medication was very unsatisfactory. Twelve grains of chloral would secure sleep of two hours duration, one-fourth grain doses of morphine hypodermically three or four hours only occasionally. Sometimes both of these remedies had only the slightest quieting effect. The movements ceased during sleep, but were as severe as ever on awakening. On the 31st and 1st there were once or twice transient illusions, *e. g.*, she insisted that her brother had placed a false face on the ornament on the top of the heating stove in the room which she occupied, but she soon recognized the normal appearance of the object.

On the night of the first she was very restless. The morning of the second found her with a temperature of 104° and delirious, the movements somewhat subsided. On the evening of the same day she was comatose, temperature 105.2° . Cheyne-Stokes respiration, no movements. She died at 2 A.M.

Temperature.—

	A.M.	P.M.
December 29,	—	101
" 30,	101	100
" 31,	102.5	101
January 1,	101.5	103
" 2,	104	105.2

Pulse.—Irregular, but of fair volume and force. Ranged from 120 on the first and second days to 140 on the third and fourth. On the evening of the second of January (last day) it was 160 and could be easily counted. It seemed that death would result from failure of respiration.

The heart.—The sounds were surprisingly good. On some of the examinations they were somewhat tumultuous, but never strikingly so. The mother stated that there were occasionally short spells of palpitation of which the patient complained, and which were apparent. I did not witness them. There was a soft systolic murmur at the apex.

The respiration.—At times irregular, jerky, sighing; characteristically choreic the first days. On the last day bad.

There were no swollen or painful joints, no cough, no abdominal symptoms, nor evidence of complications of any kind. She had no headache, no pain.

The urine and blood were not examined. A post-mortem examination could not be obtained.

A sister of the father died of chorea at the age of eight. His mother (still living), says she was affected much the same as this child.

The case had all the characters of ordinary chorea and no evidence of any complicating disease. Hence I feel warranted in reporting it as a case of fatal chorea. It will be noticed that the clinical history corresponds with those of other fatal cases which have been reported

REPORT OF A CASE OF EPILEPSY—STATUS EPILEPTICUS—DEATH.

BY RALPH WAIT PARSONS, M.D.,

Sing Sing, N. Y.

THE patient, a young man twenty-six years of age, deaf and dumb, hereditary tendencies unknown, a case of epileptic dementia, first came under my observation on July 16, 1891.

After admission to the hospital he had frequent epileptic fits, varying from eight to twenty per week, and was, at times, excitable and violent. On one occasion, the night of October 20, 1891, he had forty-one fits within three hours and twenty five minutes, and on still another occasion, on the night of January 14, 1892, he had thirty fits and three the next morning.

Table showing number of fits while in the status epilepticus.

DATES.	FITS.
January 2, 1893.	20
" 3, "	26
" 4, "	22
" 5, "	13
" 6, "	11
" 7, "	12
" 8, "	11
" 9, "	11
" 10, "	3
" 11, "	0
" 12, "	105
" 13, "	125
" 14, "	177
" 15, "	56
" 16, "	25
" 17, "	30
" 18, "	43
" 19, "	83
" 20, "	73
" 21, "	43
" 22, "	48
" 23, "	75

DATE.	FITS.
January 24, 1893.	68
" 25, "	73
" 26, "	78
" 27, "	99
" 28, "	70
Total.	1,403

On January 2, 1893, the status epilepticus supervened and during the period between January 2d and January 28th inclusive, the patient had one thousand four hundred and three distinct grand mal seizures, death occurring on January 29, 1893.

ANATOMY OF NERVOUS SYSTEM.

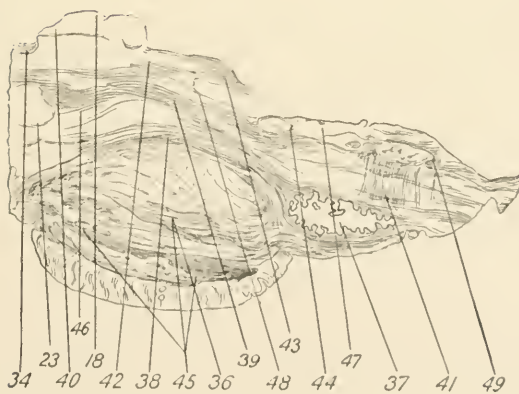
No. 3.

Longitudinal section through the crus cerebri, pons and medulla, near the median line.

- 36. Pons Varolii.
- 37. Olivary body.
- 38. Lemniscus or fillet.
- 39. Fasciculus Longitudinalis.
- 34. Post-Commissure.
- 18. Corpora Quadrigemina, Posterior.
- 40. Corpora Quadrigemina, Anterior.
- 41. Twelfth Nerve Root Fibres.
- 42. Fourth " " "
- 43. Valve of Vieussens and Processus e cerebello ad testes.
- 44. Floor of the Fourth Ventricle.
- 23. Red Nucleus.
- 45. Pyramidal Tract.
- 46. Decussation of the Superior Cerebellar Peduncles.
- 47. Striae Acusticae.
- 48. Substantia Ferruginea.
- 49. Funiculus Gracilis.

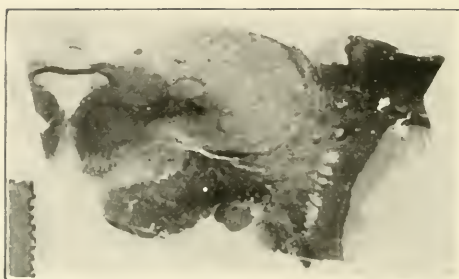


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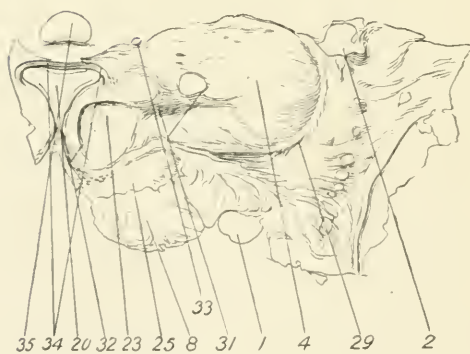


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No. 3.



a



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No. 4.

No. 4.

Frontal or vertical section through post extremity of thalamus and pineal gland.

- 31. Laminae Medullares of the Optic Thalamus.
- 8. Pes Pedunculi.
- 25. Substantia Nigra.
- 23. Red Nucleus.
- 29. Stratum Zonale.
- 4. Pulvinar of Optic Thalamus.
- 20. Aquæductus Sylvii.
- 32. Nucleus and Root Fibres of Third Nerve.
- 33. Peduncle of Pineal Gland.
- 35. Pineal gland.
- 34. Post-Commissure Fibres.
- 2. Caudate Nucleus.
- 1. Optic Tract. .

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, March 9, 1896.

EDWARD D. FISHER, M.D., President.

A STUDY OF SPORADIC CRETINISM.

Dr. WILLIAM B. NOYES read a paper with this title. He said that on September 1, 1895, he saw a child, two years old, who was not more advanced than a child of six months. The abdomen was protuberant, the nose short and retrousée, the tongue swollen and protruding, and the saliva dribbling from the mouth. There were two swellings on the neck, just in front of the sterno-mastoid muscles. The child appeared to be idiotic. Its length was twenty-four inches. The epiphyses of the long bones were somewhat swollen. There was no rhachitic rosary or any other rhachitic symptom. The mother stated that this was her first child, and that it had been born after a normal labor. Both parents were young and healthy. The child reached a weight of fourteen pounds after two months, and then did not gain for more than a year. The chief complaint had been constipation and weakness. There was no family history bearing on the condition. On September 15, the child was ordered a daily dose of one-fourth of a Burroughs & Welcome five-grain tablet of thyroid extract. By mistake a daily dose of five grains was given at first, with the result that the circumference of the neck was reduced two inches, and the child had begun to perspire. The temperature rose to 102°, and there were prostration and sleeplessness. At the end of a week the entire body had desquamated, leaving a clear, white waxy skin. On November 24, after having taken one grain daily, the amount of improvement was wonderful. By February the child had grown eight inches, and its weight had increased three or four pounds.

In considering the effect of heredity, the speaker said, it might be manifested in three ways, viz.: (1) In a

congenital local defect; (2) in a defect of growth; and (3) in a defect in the general vitality. One or more of these defects might exist in the same individual. Many epileptics, inebriates and insane persons showed this physical and psychical taint. There was a very significant hereditary element in cretinism. Some European observers had believed the cretins to be the descendants of a degenerate race, but this could hardly be credited. Recent epidemics of cretinism had shown that heredity was the chief cause of sporadic cretinism. Only those whose parents had goitre seemed to develop cretinism. Those with goitres were not cretins, but cretinism appeared in the next generation. Endemic cretinism was not so much hereditary as a hereditary local deficiency. All over Europe, and particularly in the mountains, statistics showed that deaf-mutism was much more prevalent than in the lower-lying regions. This was probably due to the evils of consanguinity, poverty and unsanitary surroundings. There were certain cretins who did not present all the typical indications of cretinism. In various parts of the world were to be seen cases presenting the general features common to endemic cretinism, which were known as sporadic cretinism. In early childhood, these cases had been frequently confused with the more common forms of idiocy. When the thyroid gland is removed by operation, or when it atrophies from disease, certain changes are observed. First, there is a general disturbance in the nutrition and the development of myxœdema—a general increase in the bulk of the body, a deposit or infiltration of mucin. The latest examinations by Halburton showed a practically normal percentage of mucin in the skin, and a very slight increase in the subcutaneous tissues. There was an excess of "basement substance" or young connective tissue holding mucin. In the later stages of myxœdema the subcutaneous connective tissues became permeated by white fibres and fat cells—the atrophic stage. The blood is altered, and there is some evidence of toxicity in the blood. Acute or operative cases in animals showed certain nervous symptoms, such as fibrillary tremors or convulsions. In the first infant, the myxœdematous process tended to produce: (1) a condition of idiocy; (2) œdema and swelling of the subcutaneous tissues would be more marked than in the adult, because the tissues were softer; (3) a general change occurred in the bony framework of the body, *i. g.*, a peculiar shape of the

skull, lordosis of the spinal column, and a general dwarfed appearance. In the long bones of cretins the almost geometrical relation of the rows of ossifying cells found in the normal condition gives place to irregular cells, and growth in the longitudinal direction is stopped. At some of the autopsies, fibrous connective tissues had been found around the epiphyses. Rhachitis was a very different process from that seen in cretinism; the cartilage cells proliferated rapidly and very irregularly, and ossification was irregular and failed entirely. Hofmeister removed the thyroids from a number of rabbits. They developed only very slight symptoms, but those operated upon were soon noticed to be smaller than the control animals, their bellies were more protruding and their skulls broader. After from two to seven months they were killed. Few changes were found in the soft parts; there was no myxœdema and no special changes in the viscera. There was a decided retardation in the development of bone in the thyroidectomized animals; the skull and jaw were the least affected. There was a difference in growth of one-third in the tibias of the thyroidectomized rabbits and the control animals. The case of a boy had been reported, from whom the thyroid had been removed when he was ten years of age, and who had not grown at all during the eighteen months that he survived the operation.

The etiology of sporadic cretinism was even more obscure than that of the epidemic form. Of the reported cases, several seemed to have been the first children of quite young parents; one or both of the parents were apt to be neurotic; there was often a marked alcoholic taint; there were other children in the family with some other nervous disease or possessing some stigma; and in Edinburgh the prevalence of cretinism was apparently due to squalor and poor food and air.

In conclusion, the speaker emphasized the following points: (1) That the symptoms of cretinism were to be explained as a result of a myxœdematous process in the undeveloped tissues of the infant; (2) the scientific application of the principles of heredity, by such methods as had been used in deaf-mutism, idiocy and other nervous diseases, would yield similar results in cretinism.

Dr. W. H. LESZYNSKY said, that he had had under his care a cretin, twenty-five years of age. It was a case of sporadic myxœdematous cretinism, and the mental

development was so defective that the man acted like a child of six years. There was an absence of the thyroid and there was some myxœdema. The man was treated in the hospital for a number of weeks by the thyroid extract with but very little benefit.

Dr. L. STEIGLITZ said, that Ewald in his most recent study of myxœdema and cretinism had not been able to accept the thyroid theory alone as the cause of cretinism. He adduced a number of good reasons for believing that this was not the only etiological factor. He thought the excellent result in the case just reported was due to the fact that the child came under treatment at a very early age. It was hardly to be expected that the older cases would respond quickly to the treatment. An interesting point about the development of cretinism was that very many of these children appeared to be perfectly normal until about the time of weaning. This could be explained by the fact that animals who fed on vegetables and milk did not develop myxœdema nearly as rapidly as animals fed on flesh.

The PRESIDENT said, that it was now pretty well established that sporadic cretinism occurred chiefly among the poor and amid unsanitary surroundings. The photograph of Dr. Leszynsky's patient closely resembles one of a family of three cretins living in this city. They were typical cretins, and they had given absolutely negative results from the thyroid treatment. He had seen a considerable increase in the intelligence even in patients of forty years. There could be no question about the excellency of the results from the thyroid treatment if the child came under observation at the age of two or three years. Goitre, he said, was widely distributed through certain portions of Canada, yet in these persons he had never observed any tendency to cretinism or exophthalmic goitre.

Dr. NOYES said, that he had desired in his paper to direct attention to the great importance of grasping all forms of stigmata. He recalled an article in which had been stated that among the French Canadians sporadic cretinism and goitre were common.

A CONTRIBUTION TO THE STUDY OF ACUTE ASCENDING (LANDRY'S) PARALYSIS, WITH EXHIBITION OF SPECIMENS STAINED BY NISSL METHOD.

Dr. PEARCE BAILEY said, that the labor of preparing this paper had been equally shared by Dr. James Ewing and himself. Although it was nearly forty years since Landry described the disease which bore his name, there were to-day conflicting views regarding its pathology. The symptoms of the original case had been, acute paralysis ascending from the legs and arms, unaccompanied by marked loss of sensation, or by involvement of the sphincters. The intellectual faculties remained unimpaired. After death, no lesions were found in the nervous system to explain these symptoms, and careful microscopical examination of the the spinal cord by several observers was absolutely negative. The nerves were not examined.

The authors of this paper said that they had recently seen a case of acute ascending paralysis with extensive lesion in the spinal cord. The patient, a female, thirty-six years of age, was admitted to the Roosevelt Hospital, November 25, 1895, to the service of Dr. Francis Delafield. The family history was negative. The patient had previously enjoyed good health. On November 19, the disease began with vomiting, which continued until the third day, when she went to bed exhausted. She then began to have occasional attacks of vertigo, and dimness of vision. On November 23, she suddenly lost the power of both legs, and the next day there was paralysis of both arms. Sensation was undisturbed. The temperature was 101.4° at the time of her admission, and the urine examination was negative except for finding a few hyaline casts. The only important point in her personal history was that she had been a rather excessive beer-drinker. There was moderate ptosis on the left side; tactile sensibility was normal; there was no pain or tenderness in arms and legs; the bladder control was normal; the knee-jerks were lost; there was diminished response of the paralyzed muscles to the faradic current. On the 27th, she complained of headache and dyspnoea;

on the 29th, the urine contained a trace of albumen, and on the 30th, after a severe attack of pulmonary œdema, she died. At the autopsy, which was made twenty hours after death, the serous cavities were normal; the lungs were moderately congested; the bronchial lymph nodes were normal. The muscle of the heart was rather pale, and there were a few atheromatous patches in the aorta. The liver was reduced in size, and the general outline of the lobules was indistinct. The spleen was large and rather firm; its trabeculae were faintly visible, and the Malpighian bodies imperceptible. The kidneys gave evidence of acute degeneration. Examination of the brain showed considerable distension of the veins and sinuses; there were no thrombi. Sections disclosed a large, but not distinctly abnormal blood-content. The consistence of the spinal cord was normal; the white matter appeared normal; the gray matter was plainly outlined and very slightly congested. The anatomical diagnosis was congestion and œdema of the lungs, acute degeneration of the kidneys, acute hyperplastic splenitis.

In the microscopical examination the Nissl stain furnished the most satisfactory result of the many stains tried. It is excellent for studying the changes in the ganglion cells; The vessels of the cauda equina were filled with blood; the axis cylinders of the nerve fibres appeared to be normal. The nerve fibres in the nerve roots appeared to be normal; in some nerve roots there was a slight perivascular infiltration of small round cells. Examination of the spinal cord showed the gray matter to be extensively affected throughout the entire length of the cord; there was intense congestion of all the blood-vessels, especially of the anterior branches of the spinal artery. Nearly all the vessels showed pronounced perivascular infiltration of small round cells. There was a diffused cellular infiltration of the gray matter, at times extending slightly into the white matter. The central canal appeared not to be especially affected. There was a more or less complete absence of chromophyllic masses in the cells. In some cells the cytoplasm was entirely bereft of chromophyllic bodies, being replaced by fine bluish particles. In the areas where the exudative inflammation was most pronounced, many shrunken cell bodies without visible cell nuclei were recognized with difficulty. In the white matter, where the inflammatory process extended into it from the gray matter, there was moderate perivascular infil-

tration. In the cortical region of the cord the lesions were most pronounced, while in the sacral region they were the least, many ganglion cells in the anterior horns remaining fairly well preserved. The lesions in the medulla and pons were chiefly marked in the gray matter, and were similar to those described in the cord. The nuclei of the cranial nerves were all more or less damaged, but chiefly in the sixth or seventh nerves. The basal ganglia showed the perivascular lesion and numerous small foci of cellular infiltration. The temporo-sphenoidal lobes were normal. Throughout the cerebellar cortex were found lesions similar to those found in the spinal cord. In the case just reported, the clinical symptoms were attributable to most extensive lesions affecting chiefly the gray matter of the spinal cord. The fact that the lesions were but slight in the sacral region explained the persistence of sphincter control.

There were many recorded cases, the speaker said, in which an ascending paralysis, unaccompanied by sensory symptoms soon involved the bulbar nuclei. An ascending paralysis pursuing a rapidly fatal course, without pronounced sensory symptoms, was a distinct clinical entity. These had always been considered the essential symptoms of Landry's paralysis.

To this paper was appended a table of all the carefully recorded cases, except those published in the Russian and Scandinavian languages, and a few old monographs. Several cases had been included which had been hitherto described as acute poliomyelitis anterior.

Fatal acute ascending paralysis might be divided into the following groups: (1) Cases in which no histological changes could be demonstrated in the nervous system; (2) those in which there was an acute exudative inflammation of the cord, medulla, and sometimes of the brain; (3) acute inflammation of the peripheral nerves; (4) acute inflammation, both of the central and peripheral nervous systems. In sixteen of the collected cases there were lesions limited to the cerebro spinal axis. A consideration of the etiology, symptoms and pathology of the disease point to the action of a toxic agent as the direct cause of the lesions. The lesions indicated an acute exudative inflammation, such as is usually found in cases having a bacterial origin. The authors had found it impossible to differentiate those various groups

by their clinical manifestations. Their conclusions were: (1) That acute ascending paralysis was probably a toxæmia in which the poisonous agent affected chiefly the nervous system; (2) That its most common seat was in the spinal cord or medulla, though it might be present in the cortex and nerve roots; (3) That the lesions in other parts of the cerebro-spinal axis were of a similar nature; and (4) That when the lesion affected the peripheral nerves there was an increase in neuroglia cells.

Dr. BEVERLEY ROBINSON said that he had not seen more than one case of this disease, and that one had been reported some time ago to the Practitioner's Society. In the clinical history of that case there was no evidence of any toxæmia. The pathologist having charge of the case had failed to examine the nervous system by the improved methods detailed in the paper, or by bacteriological methods, but he had reported that there was little or no evidence of lesion in the spinal cord, although there were some pathological changes in the nerves themselves. The case had run a rapid clinical course, and the patient had died of œdema of the lungs.

Dr. C. L. DANA said that as he recalled Dr. Robinson's case, the clinical history was clearly one of Landry's paralysis, but there were no careful microscopical or bacteriological examinations reported; hence, though the case was apparently some form of toxic neuritis, there was no proof that the nerve cells were not primarily implicated. Three years ago, when discussing the subject with Mr. Victor Horsey, the opinion had been expressed that paralytic rabies might be classified clinically as Landry's paralysis, and that probably some of these cases were really examples of rabies. The sections at present under the microscope showed some cellular changes, yet the general pathological picture was that of a very marked vascular trouble—an infection or toxæmia. He would say most certainly that the primary changes were vascular, and those in the ganglion cells were secondary.

His experience with the Nissl stain had led him to place much less confidence in its revelations than did many others. In almost any brain, one could find all sorts of changes in the chromophyllie substance, and the method of preparing the staining and sections made it seem to him that it was almost impossible that there should not be considerable differences in the way in which the various cells took up the coloring substance.

The cortex cells in this specimen seemed nearly normal, although there was here evidence of this same vascular irritation. He thought that if the nerves had been examined it would have been found that they had been damaged even more than the nervous system. He recalled a case resembling Landry's paralysis, although running a slower course, in which there had been evidence of nervous and vascular irritation; the history of the case showed it to be rapidly fatal alcoholic neuritis.

Dr. B. SACHS said that Landry's paralysis had been buffeted about a great deal by various writers. Fortunately the day had passed when diseases were classified entirely on mere topographical lines. That there was a toxic agent causing Landry's paralysis he thought there could be no doubt, and, hence, it was to be particularly regretted that a bacteriological examination had been omitted in this, and many other cases. Since the bacilli of influenza had been found in cases of spinal cord troubles following that disease, it became incumbent on every careful observer to make a bacteriological examination in other acute infectious spinal troubles. He also felt that we should be very careful in making inferences regarding slight changes in the structure of the cells in specimens stained by Nissl's method. In the case reported in the paper, one of the chief symptoms had been absence of sensory disturbance quite early in the disease. If this one clinical feature must be accepted as essential, we could not suppose that the changes which had been described were those chiefly responsible for Landry's paralysis. It was more than probable that the changes occurred not only in the brain, but in the spinal cord, and the peripheral nerves.

Dr. GEORGE W. JACOBY said that if we accepted Landry's definition of the paralysis, we could only make a clinical diagnosis, for Landry claimed that there must be a lack of anatomical evidence. He had been struck by the fact that in the case described in the paper the patient was a beer-drinker, and that the symptoms had developed quite rapidly. This had been noted in quite a number of cases. The lesion might be localized in the cells of the spinal cord or in the cortex. The report presented seemed to indicate that in the future we would probably find pathological changes in the cell body analogous to those which had been thus far found in the peripheral nerves. It would seem that we were dealing

with a chronic alcoholic intoxication of the central nervous system.

Dr. LANDON CARTER GRAY said he thought that the paper just presented was an extremely valuable contribution to the subject of Landry's paralysis. He could recall a number of cases of this disease, which could be divided into several groups. Some of these had rapidly proved fatal; some had run a slower course; some had improved and then relapsed. Those, which had recovered, had subsequently had atrophy of the muscles, and had presented a condition similar to that of poliomyelitis. He had also seen cases of alcoholic neuritis presenting several types—some few had died, some had had obstinate vomiting for days and weeks, some had passed into a miserable condition of invalidism. He could not recall any of these cases having recovered. The clinical definition of the disease could not be taken as anything more than a guide. Undoubtedly there was an underlying toxæmia, and possibly an infection. It seemed to be pretty generally agreed that Nissl's stain was still on trial, and certainly some very serious objections had been made to it, so that our deductions based upon it must be made with great caution.

Dr. JOSEPH COLLINS said that the paper just contributed had served to crystallise what had been in our minds, *i. e.*, that Landry's paralysis had been handicapped by a name and a tradition, which for years had prevented us from forming a legitimate conception of the pathology of the disease. All must have been impressed with the fact that Landry's paralysis was a disease dependent upon a poison, and that its clinical forms varied as to the part of the nervous system implicated. It had not yet been proven that the disease was one of the spinal cord or of the peripheral nervous system. When it had been said that Landry's paralysis was a disease dependent upon infection, or upon a toxic substance manifesting its action on a well defined part, or on the entire nervous system, the pathological location of the disease, so far as known, had been stated. In the case reported in the paper the lesions were universal, hemorrhagic splenitis, parenchymatous nephritis and an exudative inflammation in the spinal cord, all of which pointed to an infection. The changes in the cord were virtually those of acute anterior poliomyelitis, a disease which was very probably due to some microorganisms. The underlying condition should not be

described as a "toxæmia," which meant a primary blood infection, but as toxic. If epidemic cerebro-spinal meningitis and acute anterior poliomyelitis had been shown in a number of instances to have been associated with pyogenic micro-organisms, why should not Landry's paralysis be dependent upon such a condition also?

Dr. SACHS said that in almost every case in which the disease had been named after the person, who had first described it, an unusual reverence had been shown for the symptomatology first reported. Thus, Landry had insisted that there should be bulbar complication, yet this was more or less accidental, although present in most of the cases. It would not be right, it seemed to him, to exclude all those cases in which the process had not extended into the medulla, provided the other symptoms were those of acute ascending paralysis. It would be better to speak of the disease under discussion as Acute Infectious Ascending Paralysis.

The PRESIDENT said that it seemed to him that the so-called Landry's paralysis was an acute infectious process, which at times affected the spinal cord, and at other times affected the nerves to a greater extent. He could not see how it at all resembled the ordinary cases of even the most acute alcoholic multiple neuritis.

Dr. JAMES EWING thought the Nissl stain had been very generally accepted as the best method of studying the pathological changes in the ganglion cells. Dr. Dana's trouble with this stain was probably due to the use of alcohol as a hardening agent; the cells should be treated with bichloride of mercury. The examination of the cauda equina and the nerve roots in this case seemed to absolutely negative the opinion expressed by Dr. Dana, that in the nerves, if examined, would have been found even more pronounced changes. We would have to assume that the central nervous system and the peripheral nerves were markedly affected, and yet the intervening portion, the nerve roots, had escaped. In the case reported, sensory symptoms were almost entirely absent. A careful examination of the literature showed that cases of acute multiple neuritis resembling Landry's paralysis were exceedingly rare. The word "toxæmia" had been used advisedly in the paper, for the authors were not ready to state that Landry's paralysis was an acute infectious disease. They used the word "toxæmia," because they believed the disease was produced by a toxic agent in the blood, which, at least in some cases, was of a bacterial nature.

American Psychiatry.

UNDER THE DIRECTION OF

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ORIGINAL STUDIES AND REPORTS.

Children of a Day. Read before the Association and Directors of the Poor and Charities of the State of Pennsylvania, Elwyn, Pa., October 17, 1895, by Martin W. Barr, M.D., Chief Physician Penn. Training School for Feeble-minded.

The idiot and the genius are children of the same race.

The later diagnoses of alienists determining racial characteristics show traits unmistakable by which can be traced the wonderful influences of degeneration ; working downward, producing the idiot, the imbecile, the abnormally backward or peculiarly precocious child,—developing not infrequently the moral

imbecile or the habitual criminal ; working upward, by the expanding of one side of the being to the detriment or prejudice of the other, producing the monomaniac developing into the artist in many lines ; in short, the man of genius towering above his fellows by abnormal growth, overtopping alike their weakness and his own.

Considering only the former of these we find two groups : Imbecility representing the improvable, idiocy the unimprovable—both of these modified and influenced by the potent factors of epilepsy and paranoia.

A further division shows :

1. The idiot—apathetic and excitable.
2. The idio-imbecile.
3. The imbecile—low, middle and high grade.
4. The moral imbecile.

This nomenclature is capable of further subdivision based on pathological or ethnic classification. For instance, we have in the first class the microcephalic idiot and the hydrocephalic idiot. In the idio-imbecile we have the Mongolian and the Maylayan types, so called from physiognomical resemblance to these races.

The idiot both apathetic and excitable, the former most common, is only developed physically and his intelligence that of a babe who recognizes his nurse and but little more.

The idio-imbecile, as the name implies, stands between the idiot and the imbecile, and includes not only the Mongolian, but the Cretin. He is mostly dwarfed, with speech and hearing not infrequently defective, and is susceptible of training in but slight degree. He may learn some simple thing, as to knit, to weave mats or hammocks, or, indeed, any of the simple manual occupations, but never to read or write.

The imbecile—the improvable class—grades from low, through middle, to high. The first, low grade, rarely if ever learn to read, but is susceptible of training in good service, always under direction, in household, farm or the simpler occupations of the work shop.

Those of middle grade are capable of some advance in reading, writing, form, color and number work, but for them also development is best attained through the medium of simple handicrafts having their initiative in the kindergarten.

The third, or high grade, shows children frequently strong in body and but slightly deficient mentally, capable of progressing slowly as far as the ordinary grammar school grade, and developing often an aptitude for music, drawing and the various manual arts. These are the backward children that the schools complain of, whose development under excessive pressure or the excitement of competition, would inevitably be arrested. So nearly normal are some of these, that their defect would perhaps

be noted only by the initiated. It is chiefly that lack of will-power and judgment which not only precludes the attainment of success in life, but which also renders them an easy prey to the designing and the vicious.

To this class chiefly belongs the moral imbecile; as a child we find him the *bete noir* of the nursery, the terror of the neighborhood; in youth often conspicuous in the police courts; difficult to control within the walls of an institution, in the world doubly so, he must there inevitably join the ranks of the habitual criminal. The absence of moral nature—what we term not immoral, but amoral—is often united with extreme mental precocity which, together with a pleasing exterior and engaging manners, renders him a dangerous member of society from which he should be forever secluded.

One of the saddest features of our work is the denial we must give to the oft-repeated question of sorrowing mothers: "How soon will my child be cured?" The incurability of imbecility is for the world as great an enigma as is the existence of the moral imbecile. We may train, strengthen, develop what is there—but as Wilbur so forcibly puts it:

"We do not propose to create or supply faculties absolutely wanting; nor to bring all grades of idiocy to the same standard of development or discipline; nor to make all capable of sustaining creditably all the relations of a social and moral life; but rather to give to dormant faculties the greatest possible development, and to apply these awakened faculties to a useful purpose under the control of an aroused and disciplined will."

Census reports show imbecility steadily on the increase, and that to-day there are nearly one hundred thousand mental defectives of this class in the United States. Provision has been made for the care and training of eight thousand, but of these, five thousand are unimprovable—incapable of training and are by their infirmity naturally set apart from harm to themselves or others. The three thousand improvable must be kept from ever polluting the life of the nation by taint of blood or irresponsible crime.

ABSTRACTS.

On the Relations of Physical Disease and Mental Disorders.

In the eighth annual report of the St. Lawrence State Hospital, Dr. J. M. Mosher states that the study of the relations of insanity with so-called physical disease, results in the conclusion that the distinction between affections of the mind and body are more apparent than real, and that successful treatment of mental disease depends on medical methods.

Disease of the nervous system, if due to gross organic lesion, are followed by definite symptoms, but their early stages

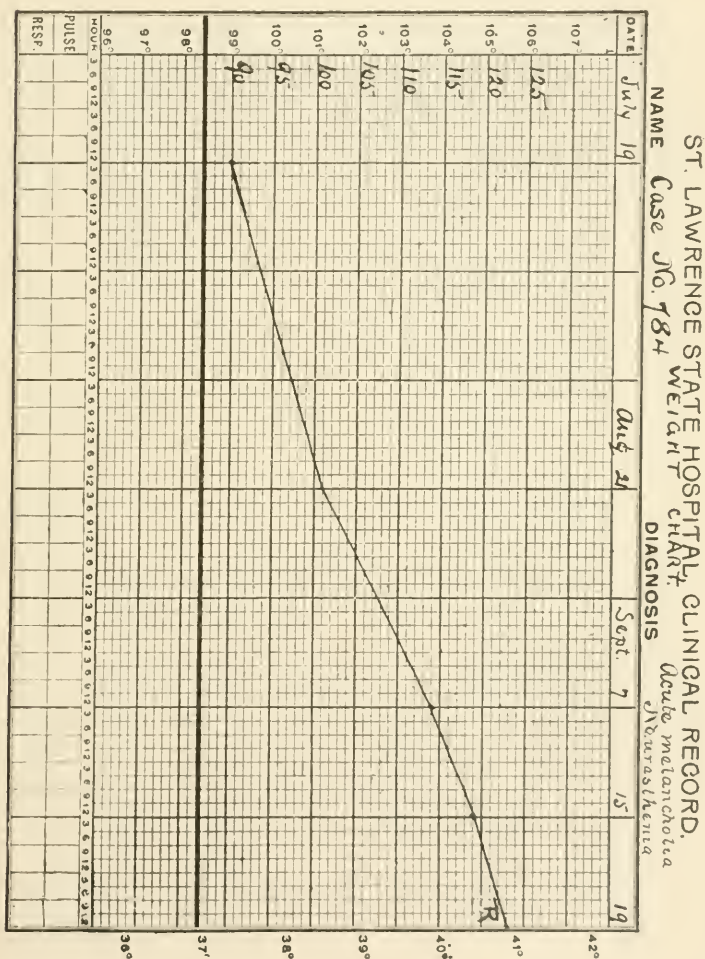
may be marked by temporary symptoms, such as disorders of special senses or speech, numbness, vertigo, emotional disturbances, or presentiments in the mind of its own obstruction. In the case of a woman, aged 57, admitted to the hospital suffering from acute mania, an attack of apoplexy from which the patient died, was preceded by persistent delusions that her legs and the legs of other people were made of straw and wood, and later by hyperæsthesia and pain in the knees and ankles.

Neurasthenia is closely associated with insanity and its effects can be noted even in chronic cases, but it is especially frequent in the early stages of insanity. Physical symptoms, such as lack of control of nerve force, failure of co-ordination, increased excitability with quick exhaustion are followed by such mental symptoms as lack of power, of attention, and changes in bodily sensations causing a feeling of ill-being, soon followed by introspection, apprehension, restlessness, worry, suspicion, and delusions. A woman, aged 50, was admitted to the hospital, who had had a fall three years before, striking on her face, soon after which she became insane. She was treated in another hospital and was discharged improved, but had subsequent periods of excitement, accompanied by profuse expectoration, abnormal sensations and paroxysms of irritability. She was feeble and emaciated when admitted to the hospital and was kept in bed, fed freely, and given iron and gentian. She complained of pain and various peculiar sensations for several weeks, and the salivation continued, but she soon became cheerful and was discharged recovered a little over two months after admission, having gained twenty-three pounds in weight.

Diseases of the digestive system are frequent complications of insanity, and their treatment is necessary to the cure of the mental symptoms. Dyspepsia, functional derangement of the liver, and constipation are common in the acute forms of insanity. Recovery from melancholia has followed the removal of impacted feces, and auto-intoxication in this condition is sometimes followed by active mania or melancholia or delirium with rapid emaciation and exhaustion. The treatment of these cases consists of the disinfection of the primæ viæ, rest, an abundance of digestible food, and stimulation. Depressing hypnotics are not indicated, but sulfonal or trional may be cautiously used. A case is quoted which resulted in death, in which the autopsy showed a peri-encephalitis and in which the stomach and intestines were inflamed, while the kidneys showed acute degeneration.

Among the diseases of the circulatory system, arterial sclerosis and valvular disease of the heart are most commonly associated with insanity. In the former, the diagnosis is made by the hard pulse and firm vessel-wall, the hypertrophied heart and

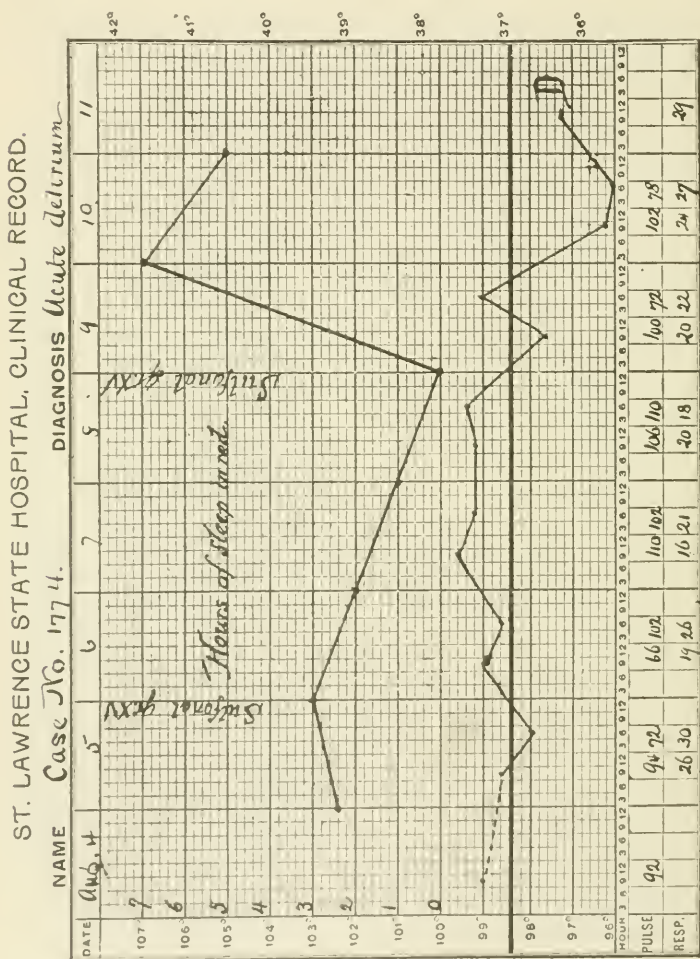
the aspect of premature senility. A woman, aged 71, expressed delusions of persecution when admitted to the hospital and heard voices accusing her of improper conduct. The apex of the heart was in the nipple line, and there was a blowing



systolic murmur loudest at the apex. Digitalis, whiskey and iron lessened the severity of the mental symptoms.

The uncertainty as to the relationship between kidney lesions and mental symptoms is due in part to the neglect of systematic urinalysis in hospitals for the insane and in part

to the neglect of mental symptoms by general practitioners. Osler is almost the only author of a work on practice of medicine, who gives insanity a prominent place among the mental symptoms of uremia. A man, aged 65, was admitted to the



hospital May 18, 1894, with a feeble pulse of 96, but with high arterial tension. The temperature was 99.2, and the tongue was brown and dry and the pupils were contracted. The heart was hypertrophied and the impulse was forcible. The urine contained albumen and casts. He had been insane for a

month, had been comatose for a time, had been incoherent, restless, and at times cataleptoid. Occasionally he had been violent and he had passed fæces and urine involuntarily. He was given diuretic, tonics and laxatives and was discharged in less than three months without any symptoms of insanity.

Diseases of the respiratory system associated with insanity are usually due to tuberculosis, which has caused a large number of deaths in hospitals for the insane. The establishment of the fact that tuberculosis is infectious, has changed opinion in regard to its relationship to insanity somewhat, but it is a fact, long noted, that insanity and phthisis frequently exist in the same family while they may or may not co-exist in an individual member of it. The case of a young woman admitted to the hospital in November, 1895, illustrates the frequent association of tuberculosis and the monomania of suspicion. She had consolidation of the right apex, a cavity in the left, and an open sinus from the sternum. She was restless and suspicious and removed the dressings from her wound and resisted the care of the nurses because of indefinite fears of injury. The excitement subsided in about a month, and was accompanied by a disappearance of the active pulmonary symptoms.

Among the constitutional diseases, diabetes is illustrated by the case of a woman, aged 56, who was admitted to the hospital with little medical history, except that she had paroxysms when she was violent, destructive and homicidal; and that she had delusions of persecution. It was found, that she had glycosuria and on an anti-diabetic diet she improved rapidly so that she was discharged recovered from her insanity four months after her admission.

ROBERT COOK.

Mental Stupor as a Pathological Entity. By James R. Whitwell, M.B., West Riding Asylum, Menston (*Brain*, Spring No., 1895). Dr. Whitwell contributes another portion of evidence toward the support of the seeming rapidly growing conviction that we shall soon have definite pathological changes for given mental states. His theory, and the evidence can be best stated in his own words:

"From a clinical and pathological study of a series of cases of so-called mental stupor, I have endeavored to point out that there is some considerable weight of evidence in favor of the view that these cases, or certain of them, may be due to a want of normal proportionate development in the circulatory and nervous systems; that want of the due ratio in the time of development of these two systems, leads to nerve cell malnutrition or dystrophoneurosis, and consequent imperfect mental action; that, in fact, while the brain reaches the degree of development normal to the age, sex, and physique, the blood-vessels and frequently also the heart, remains in its puerile con-

dition, the aorta and other vessels throughout the body, therefore, showing a condition of congenital narrowness, associated in some cases with a congenitally small heart. If the cardiovascular condition be only temporary, and under proper stimuli continue to undergo its development, finally the normal vascular-cerebral proportion is brought about, and the patient recovers from his mental stupor. If, however, a condition of permanent hypoplasia obtains, the case sinks into dementia, and is either carried off by some intercurrent acute disease, or, as is frequently the case, develops phthisis."

His reasons are based on the findings (post-mortem) in certain cases of small heart and aorta; on the results ordinarily attributed to increased or diminished blood supply; and by the action of nitrites.

He gives four cases, with complete history of two of them, in which the "stupor" was terminated by death from intercurrent disorder, and in which an abnormally small aorta was found. He also studies a case of intermittent stupor in which during the period of stupidity, "high tension indicative of peripheral resistance was the invariable rule, and this, completely relaxed, giving rise to distinct diastolic murmur on the supervision of lucidity." He concludes:

(1) That there is at least one form of mental stupor, associated with and probably due to a want of proportionate development between the vascular system, or part of it, and the brain, and for this condition I have suggested the name "stenotic dystrophoneurosis" in order to differentiate it if possible by a name having a pathological significance.

(2) That in these cases either (a) the cerebral basal vessels or (b) the aorta and heart (omitting the question of compensatory hypertrophy) or (c) all of these, are smaller than normal, having ceased developing at a stage of evolution about puberty or adolescence.

(3) That during life the heart tends to hypertrophy, when the patient is otherwise healthy, the aortic second sound to be accentuated, and the pulse to be of high tension.

(4) That delayed cardio-vascular development about puberty and early adolescence may be associated with a form of mental stupor from which recovery is impossible with hypertrophy of the heart.

(5) That cessation of cardio-vascular development about this time may be associated with a form of mental stupor, from which recovery is impossible, and no hypertrophy of the heart is found post-mortem.

(6) That there is an intermittent form of stupor, caused by or associated with temporary spasm of the peripheral vessels during the period of mental stupor, this spasm relaxing during the period of lucidity.

Abnormal Brain by Julius Mickle, M.D., F.R.C.P.,
Convulsions, London (*Alienist and Neurologist*,
October, 1895). The author in this essay, studies the brain
form more especially in its relation to the degenerative of crim-
inal type; as to whether there is a criminal anthropology of the
brain. That the text-book normals were derived in the main
part from the waifs, and wrecks of society, and that these forms
were preserved chiefly by diagrams, is the full reason, for the
need of modifying them, which he has found.

Moreover, he first enumerates a large number of variable
factors which must be eliminated before judging a normal or
abnormal brain. He enumerates,—“the pathological brain
changes found both macroscopic and microscopic; the diseases
of parts and organs other than the brain; disorders of blood
and lymph circulation, with all their possible and general
states and effects; alteration of the blood constitution in itself;
addition to the blood of morbid deleterious materials in, of, or
derived from food, drink, drugs, and pathogenic microbes;
either transitory or diathetic autotoxic states, of abundant mul-
tiplicity of form and origin; practical starvation of brain, or
again its perverted nutrition, however brought about; the
strain and stress of life, social affective, occupational; the
physiological evolutionary and involutional crises and changes
of the organism. There are also such considerations as the
relative size of the brain to the whole body, or to standard
weight of race or age; the relative proportion of grey and white
in the brain; the richness of the grey, its depth, actual as well
as relative, its natural minute structure, in a word, the more
important part of the finer architecture of the brain; and
finally, the outcomes, other than those mentioned in this
address, of a comparative evolutionary elaboration, or evolu-
tionary simplicity of a brain as the case may be.”

Beyond all these, however, he finds evidences of defective
types, and certain amount of agreement between brain confor-
mation and clinical psychiatry. In general, he finds cortical
abnormalities more frequent in the right hemisphere, and an
irregularity of gyri quite different from their multiplication of a
highly endowed brain. He names first a “præcuneolus,” a
superficial insulation of a portion of the quadrate lobule; again
a close proximity of the transverse occipital sulcus to external
parieto-occipital fissure; again a “reversed occipital opercu-
lum;” again furrows from Sylvian fissure ploughed vertically
part of the way up to the middle, the external surface of the
central gyri. These and many others. One can not well
abstract the many abnormalities noted, some clearly abnormal,
others vaguely so. It is chiefly of value to say that this com-
petent observer, after prolonged study and after sifting various
testimony, announces “in point of detail this subject is one of

contention, but as to the broad general fact of the existence of such signs, or indications of hereditary mental degeneracy, I do not entertain the slightest doubt." That is, studying clinically "degrees and forms of imbecility and paranoia and allied states," he holds the existence of a "brain configuration differing from the standard about as much as the form of mental affection itself differs clinically and nosologically from the cases yielding the standard conformation of brain." Of course, both the normal and abnormal standards are elastic, not rigid.

NEWS AND MISCELLANY.

Dr. O. Wellington Archibald, Superintendent of the Hospital for Insane at Jamestown, North Dakota, has been removed from office and Dr. A. S. Moore, who was formerly assistant physician there, and who has been practising in the town adjoining, has been appointed to the position by one and the same resolution. This change was made by a bare majority of the board, which like the papers and the public, seems to be divided into two opposing parties.

Staff Meetings. During the past six months "staff meetings" have been held daily at the Eastern Michigan Asylum. By mutual understanding, administrative work was for the greater part excluded, and the time occupied in the discussion of questions pertaining to medicine, and psychiatry in particular. The presiding officer is usually the superintendent, or, in his absence, the assistant superintendent. A permanent secretary records the essential points of each meeting, reads the minutes each day, and also assigns the meeting to some member of the staff. The minutes are indexed, filed, and retained for reference.

The matter submitted by the physician in charge is left to his selection. Especial attention is, of course, given to recently admitted patients. Often a number of cases are presented illustrating a special type. Again, abstracts on subject relating to psychiatry or neurology are read. Criticisms on books, abstracts from journals, and original articles are frequently presented. Thus the subject matter may vary to a great extent. One hour each day is given to the meeting. These meetings are considered to be advantageous in every respect. The unflinching zeal and the interest manifested certainly verify this statement.

IRWIN H. NEFF.

A New Hospital for the insane was authorized in Maryland by the legislature of 1894.

New Epileptic Hospital. In Massachusetts a new hospital for epileptics has been formed. It is called the Massachusetts Hospital for Epileptics and provision is made for 200 patients. Patients are committed under about the same regulations as are the insane and can be transferred to the insane hospitals or back again as may seem needed.

Epileptic Colony. In Virginia a movement is on foot to secure a colony for epileptics, and chief in pushing the movement seems Dr. Wm. Drewry, first assistant physician at Petersburg. The movement beside being a worthy one, is one that seems likely to succeed.

Some Recent Hospital Reports. In these reports as given, it is to be noted that the proportion of recoveries is more accurately computed with relation to admissions than to any other factor. The admissions are fairly steady each year in a hospital that is steadily running, while for a series of years the sources of error become very small. Percentages given are approximate. Consumption covers cases designated phthisis and tuberculosis.

Maryland Hospital for the Insane, (Report, 1895). Proportion of "recovered" to number admitted, 38%. Proportion of those discharged "improved" to admissions, 13%. Proportion cases general paresis to admissions, none. Proportion deaths from consumption to the whole number deaths, 23%. It is noted in addition, that the proportion of recoveries to the whole number cases admitted considered curable is 84%.

Iowa Hospital for the Insane, Mt. Pleasant, (Report, 1895). Reckoning as in the preceding case, recoveries are noted at about 34%, improved at about 23.7%, general paresis at about 3.6%, and deaths from consumption at about 10%. The death of Dr. Peck, after eleven years faithful service, is deeply mourned and his worth sincerely acknowledged. A pathological report of five cases is presented, interesting in character and with micro photographs.

Quebec Lunatic Asylum, (Report, 1895). Recovered, 27%, improved 6%, general paretics, none noted, deaths from consumption, 22%. Has discarded all mechanical restraint. "To-day everyone is so convinced of the superiority of this system over that of restraint, that none would think of returning to the latter."

Westborough Insane Hospital, Mass., (Report, 1895). Recovered, 28%, improved, 16%, general paresis, 6.3%, deaths from consumption, 5.4%. This hospital has a consulting board of ten physicians and surgeons. It is recommended that pathological work be begun by a salaried officer. The rectal and uterine surgical work of the past year is commended, and the principles of homœopathy affirmed. Commends the restraint

by bedsheet, and the rest treatment. Training school is continued.

Taunton Lunatic Hospital, Mass., (Report, 1895). Recovered, 20%, "much improved," 7%, "improved," 14%, general paresis, 7%, deaths from consumption, 18%. "A Training School for Nurses has been established and the interest manifested in it by many of the attendants is very gratifying." "Sixteen autopsies have been made during the year." "As the pathological work increases a fully equipped laboratory will be needed, and undoubtedly will be provided." Seventy-eight patients died during the year. Fifty-three of the 406 patients admitted have been in asylums before, anywhere from one to nine times each.

Iowa Hospital for the Insane, Clarinda, (Report, 1895). Recovered, 35%, improved, 27%, general paresis, 2.5%, deaths from consumption, 34%. Hereditary predisposition is emphatically stated to be the main cause of insanity.

Longview Hospital, Ohio, (Report, 1895). Recovered, 25%, improved, 11%, general paresis, 3%, deaths from consumption, 10%.

Georgia Lunatic Asylum, (Report, 1895). Recovered, 34%, improved, 27%, general paresis, , deaths from consumption, 8.5%. "During the past year we laid the foundation for a regular organized Training School for attendants, and during the present year we hope to give them systematic instruction on general nursing and the various forms of insanity."

Western Kentucky Asylum, (Report, 1895). Recovered, 34%, improved, 27%, general paresis, .5%, deaths from consumption, 35%. Has abolished restraint as far as possible and the "effect produced upon patients almost without exception has been beneficial." Has established a ward for violent patients. Notes also the benefit of the hospital ward.

Political Places for Physicians. The recent political upheaval in Maryland has caused wideawake statesmen to survey the field in search of spoils, and the *Maryland Medical Journal* gives a list of the particular spoils to which competent medical men are eligible. In Baltimore alone, there are thirty places, with salaries ranging from \$400 to \$3,000.—*Medical Record*, Jan. 11, 1896.

A New Lunacy Law has been prepared by Assemblyman Horton, of Wayne County, who will introduce at once to the New York Legislature a bill relating to the examination of alleged lunatics prior to being pronounced of unsound mind. The bill provides that none but State insanity experts may examine persons whose sanity is brought into question; that the experts must form their judgment solely from the exami-

nation and not from testimony, and that the experts must be strangers to the persons examined.—*Medical News*, Jan. 18, 1896.

One of the Advantages of Being Married.

The women of the State of Missouri are circulating a petition to the governor of the State, requesting that he appoint only married men as resident physicians at the various insane asylums in the State. This is a most extraordinary reflection on the character of the assistant physicians of the Missouri State Asylums. We feel sure that the governor will not do so silly a thing as to grant the petition.—*Medical Record*, Jan. 11, 1896.

The State Commission in Lunacy

has appointed Dr. Ira Van Gieson, of New York, to the position of Director of the Pathological Institute of the State Hospitals for the Insane, which has recently been established. Dr. Van Gieson was selected after a special competitive civil-service examination, which embraced a series of questions in general pathology, minute and pathological anatomy of the nervous system, technique and methods of neural investigation, and the lines of research to be applied to the study of the pathology of insanity.

For the Colored Insane.

Two asylums for the colored insane are said to have been authorized by the Legislature of Tennessee, one at Bolivar, and one at Lyons View.

Opinions Concerning Schlatter.

The *Journal of American Medical Association* notes a collective enquiry by the editor of *Voice* to secure the opinions of physicians as to cures made by Schlatter. Meanwhile a newspaper rumor comes that Schlatter has perished in a recent storm.

NOTICE.

The New York State Civil Service Commission finds great difficulty in securing suitable candidates for the position of woman physician in the State hospitals. These positions are desirable ones, paying from \$1,000 to \$1,500 per year, besides giving ample opportunity for practice and study in nervous and mental diseases, with pleasant home and associations. The examination advertised in January failed for lack of applicants.

Application for this examination should be made to the secretary of the State Commission at Albany.

Periscope.

UNDER THE DIRECTION OF

ALFRED WIENER, M.D.

With the Following Collaborators:

G. BROWN, M.D., New York.	J. K. MITCHELL, M.D., Phila., Pa.
A. FREEMAN, M.D., New York.	H. PATRICK, M.D., Chicago, Ill.
S. E. JELLIFFE, M.D., New York.	WM. B. PRITCHARD, M.D., New York.
WM. KRAUSS, M.D., Buffalo, N. Y.	S. SHIVELY, M.D., New York.
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R. K. MACALESTER, M.D., New York.	P. MEIROWITZ, M.D.

ANATOMICAL.

Anatomical Investigations, Chiefly With Gudden's Atrophy Method, Regarding the Nuclei of the X Nerve.

By Dr. Ossipow, (*Neurologisches Wiestnik*, Vol. III. No. 3.)

New born young cats and dogs were used for the experiments, which consisted in section (resection?) of the tenth nerve, in some cases above, in others below, the ganglion nodosum. The animals were allowed to live from three to ten weeks after the operation.

The following conditions were observed as secondary sequelæ of the lesions performed:

1. Atrophy of the roots of the X nerve on the operated side.
2. Atrophy of the posterior (dorsal) nucleus (the one with the small cells) of the X nerve on the operated side. The atrophy was especially marked in the higher levels, chiefly in the postero-internal part of the nucleus.
3. Marked atrophy on the operated side of that part of the ala cinerea which is situated caudad and lateral of the posterior nucleus of the X nerve.
4. Slightly marked atrophy of the nucleus ambiguus on the operated side.
5. Atrophy of the solitary (respiratory) bundle of the operated side up to its ending at the level of the apex portion of the decussation of the pyramidal tracts.
6. Distinct atrophy of the gelatinous substance accompanying the solitary bundle—on the operated side.
7. On both sides degenerative changes in the inner part of

the reticular formation (and in the anterior columns) in connection with the degeneration in the root fibres of the X nerves of the operated side. ONUF.

On the Nerve Cells By Dr. L. W. Blumendu, (*Neurologisches Wiestnik*, Vol. III. No. 4.)

B. examined chiefly the spinal cord of new born cats after Golgi's method. The result of his researches leads him to the following conclusions:

The physiological distribution of the various cells of the gray substance of the spinal cord (in mammals) is more or less the following:

1. The region of the root-cells corresponds to the antero-lateral portion of the anterior horn.

2. The internal (mesial) part of the anterior horn is taken up chiefly by commissural cells.

3. The posterior horn and the lateral portion of the intermediate zone contain chiefly cells of the lateral column ("Seitenstrangzellen").

4. In the region of Clarke's columns commissural cells are found aside from cells of the lateral columns ("Lateralstrangzellen").

5. The posterior horn also contains cells of the posterior column ("Hinterstrangzellen").

6. Cells of the second type of Golgi are met with principally in the posterior horn, and in the gelatinous substance of Rolando. ONUF.

On the Relation of the Nucleus Reticularis Tegmenti to the System of Fibres Connecting the Frontal Lobe With the Pons.

By A. Lasucki (*Neurologisches Wiestnik*, Vol. III. No. 3.)

Flechsig had described two tracts of fibres connecting the cerebral cortex with the gray matter of the pons.

Becthterew had shown that these nuclei of the pons are in this locality connected with the reticular nucleus.

L. in the examination of the brain of a child, aged several weeks, stated that a direct connection, uninterrupted by cells of the pons nuclei or other cells, exists between the cortex of the frontal lobe and the reticular nucleus. Before the tract of fibres connecting the frontal lobe with the pons nuclei reaches the latter, part of the fibres separate themselves from the chief tract, and forming a circumscribed bundle curving around the pyramidal tract, pass inward and upward. Breaking through the fillet between its internal and middle third, mesially of the sixth root, this bundle continues towards the lateral side of the reticular nucleus and its fibres evidently end within this structure. ONUF.

PATHOLOGICAL.

Medullary Lesions in a Case of Acute Ascending Paralysis. Ballet and Dutil reported at the Société Médicale des Hopitaux, on the 15th of December, 1895, a case of polyneuritis of ordinary character, in which lesions in the cord were shown by three methods; first, by Nissl's plan, second by eosin and hemotoxylin, and third by picro-carmin. By Nissl's method the cells of the anterior cornua were found to have lost their prolongations, to show sometimes a partial swelling of the protoplasm, and sometimes to have lost their granular character. With the eosin and hemotoxylin it was noted that the nucleus was pushed to one side in some cases, and in others was star-shaped. No satisfactory results were derived from the picro-carmin stainings. M. Ballet thought that it was impossible to decide whether the primary alteration was in the cord or in the nerve, but was of opinion that, in spite of Waller's law, there were many modern observations proving the possibility of lesions of the cord consecutive to neural changes. There is nothing in the cellular modifications which would allow one to say whether the alterations were primary or secondary.

MITCHELL.

Hysterical Meningitis. *Le Med. Mod.*, 18th December, 1895, M. Huchard reports a case of hysterical meningitis. The patient, a syphilitic, had convergent strabismus, and later complete blindness, fever and delirium. At the apex of the right lung there was a slight loss of resonance. The diagnosis of hysteria was considered established by characteristic hysterical attacks, and M. Huchard also thought that it was common to find a similar dullness over portions of the lung in hysterical patients, which he believed to be due to contraction of the muscles. It is often mobile, and provoked by the slightest touch, even of the finger in percussing. It is important to distinguish, as it might create a suspicion of a pulmonary lesion of a tubercular character, and lead to a false diagnosis of tubercular meningitis, when it occurs with such a combination of symptoms as was present in this case.

MITCHELL.

Abnormal Development of the Nervous System as a Stigma Sign of Degeneration. By Prof. H. M. Popow (*Neurologischer Wiestnik*, Vol. III. No. 3.)

The report concerns the case of a man, aged forty-two, who at the time of his admittance to the hospital of Karan, complained of pain in the lower extremities, accompanied by disturbances of gait. These symptoms were found to be due to multiple neuromata and fibromata, which

were distributed over the whole body. They were congenital and the mother had been affected in the same manner. In the patient these tumors were stationary and caused no symptoms except in the last years, when they began to grow much, and to cause many sensory and motor symptoms. Operations performed brought relief, but it was only temporary; the condition grew gradually worse, and the patient died from extreme exhaustion.

The autopsy revealed normal development of the brain and spinal cord, but the former showed extraordinary size; after hardening in 2 per cent. bichromate of potassium solution it weighed 2,040 grammes, while a normal brain, treated in the same manner, weighed 1,570 grammes. Optic nerves and all peripheral nerves were thickened in a striking degree; in many places the thickening was regular, so as to appear only as an increase in calibre, in other places the thickenings were spindle-shaped. In the peripheral nerves the thickening proved to be due to a hypertrophy of the connective tissue, while the nerve fibres showed atrophy. The optic nerves were examined with special care. They measured 9, 5 mm. on the cross-section in one direction; 8, 5 mm. in the other diameter (normal measures, 5 mm. + 4 mm.). The chiasma presented a width (in antero-posterior direction) of 18 mm. Histologically, the connective tissue of the optic nerves was strongly developed, but only in such degree as could appear normal in view of the general thickening. The striking feature was the enormous thickness of the myelin sheaths of the individual fibres, many of which reached the thickness of 25 micromilimeters, while the highest diameter found for nerve fibres of a normal optic nerve was 7, 5 micromilimeters. Such fibres, with thickened sheaths, were rather sporadic in some of the cross-sections, on others they were the predominating feature.

The brain showed normal configuration, its extreme size was due to the extraordinary development of the medullary sheaths of the nerve fibres, which was particularly striking where they were arranged in a net work, the latter presenting a massive appearance. In the cerebral cortex the first layer of fibres was so extremely developed that it could hardly be differentiated from the tangential layer; yet the relative number of fibres of the first layer as compared with that of the tangential layer was not increased. There was a great richness of fibres in the first layer as compared with that of normal brains.

Examination of the spinal cord showed also thickening of the medullary sheaths as the characteristic feature. It showed itself in the massive development of the fibre network in the gray substance, chiefly in the anterior horns.

Aside from these changes of medullated nerve fibres, cell

changes were found both in the spinal cord and cerebral cortex; pigmentations around the nuclei, loss of processes, etc., besides vascular alterations. The cell changes bear a degenerative character, and were probably due to a recent process, causing the disturbances of nutrition, to which the patient succumbed. The changes of the nerve fibres were evidently due to abnormalities of development. As the multiple neuromata and fibromata with which the patient was affected are usually found in connection with degenerative conditions as idiocy, cretinism, etc., it is safe to consider the changes found in the central nervous system of the case reported, as signs of degeneracy. Unfortunately, no proper history could be obtained, accordingly no record exists as to whether the abnormal development of the medullary fibres of the central nervous system had been accompanied by any disturbances of their functions, whether mental anomalies were present, etc.

ONUF.

Quelques Observations sur l'Anatomie de la Moelle Allongée, du Pont, et des Peduncles Cerebraux. Resume de l'Auteur.

By A. Bettoni (*Archiv. Italiennes de Biologie*, Vol. XXIII. 3, 1895. p. 375.)

The writer records a series of observations upon the anatomy of the medulla, pons and cerebellar peduncles following the destruction of large parts of the cerebellum.

In the medulla, he found on the same side as the lesion. Atrophy of the external nuclei of the "funiculus cuneiformis" and of the gray masses known as the nuclei of the lateral columns. Atrophy of the restiform body. Disappearance of several groups of the "arciform" fibres. Disappearance of the cerebellar olivary fibres. Atrophy of the Deiter nucleus.

On the side opposite the lesion. Disappearance of the bulbar olivary bodies.

In the region of the pons. Sclerosis of the right half of the pons. Evident reduction of the gray substance of the pons. Thinning of the left pyramidal tracts. Disappearance of the right anterior cerebellar peduncle.

In the peduncular region, hemi-extirpation of the cerebellum produced disappearance of the right anterior cerebellar peduncle with the substitution of sclerotic tissue.

Notable reduction of the gray substance of the nucleus "rouge" of Stilling of the left side.

Notable reduction of the "locus niger" of Sömmerring, equally of the left side.

JELLIFFE.

The Microbic Nature of Nervous and Mental Diseases.

In the *Gaceta Médica Catalana*, of Barcelona, Jan. 15, 1896, appears a list of diseases of the nervous system, compiled by Dr. Galceran, whose microbic origin has been defi-

nitely ascertained. This list comprises the following diseases, the pathogenic organism present and the author or discoverer of the presence of the specific germ:

I--Acute meningitis.

Acute delirium.	Pneumococcus.	
Acute general mania.	Streptococcus.	
Acute mental confusion.	Staphylococcus.	Regis
Simple, hallucinatory or	Coli-bacillus.	Chevalier
psycho-sensorial.	Bacillus typhosus.	Lavaure.
Dementia melancholia or	Bacillis tuberculosis.	
acute primary.		

II—Paresis—Syphillis.

Goldsmith, 35%; Ascher, 37.7%; Ziehen, 43%; Cullere, 42%; Jacobson, 44%; Biersenger, 49%; Burkhardt, 50%; Goldstein, 50%; Erb, 52%; Fischer, 60%; Mierzejewski, 60%; Ocbeke, 62%; Thomsen, 62%; Bounet, 66%; Cuytitz, 73%; Reinhardt, 73%; Snell, 75%; Mendel, 75%; Jespersen, 77%; Rohmel, 77%; Rumpf, 78%; Mac Dowal, 80%; Regis, 80%; Fournier, 80%; Anglade, 81%.

III—Locomotor ataxia—Syphillis.

Fournier, 91%; Erb, 89%; Althous, 90%; Quinquad, 100%.

IV—Infantile cerebral sclerosis.

Idiopathic epilepsy.	Toxines micro-	
Sclerose en plaques.	bian (multi-	Marie.
	ple).	

V—Tetanus.

Bacillus of Nica-	Vaillard, Vincent, etc.
laier.	Behring.
	Kitasato.

VI—Acute amyotrophic.

Acute infantile par-	Streptococcus.	
alysis.	(Erysipelas).	experimental
Acute infantile par-	Klebs bacillus.	production.
alysis, adult form.	Streptococcus.	Roger
	Scarlatinococcus.	

VII—Acute diffuse myelitis.

Micrococcus	Bourges,
gonorrhoea.	Pitres, Guel,
	Leyden.

VIII—Scleroderma.

Syringomyelia.	Bacillus of Hansen,	Zambaco
Morvan's disease.	(B. Lepra).	pipes.
Leprosy.		

IX—Landry's paralysis.	} Microbe analogous to the bacteria of car- buncles.	} Marinesco. Marie.

KRAUSS.

Epithelioma of the Cranial Vault. In the *Gazzeta degli Ospedali*, Dec. 21, 1895, Dr. Buel reports a case of epithelioma of the cranium in a man sixty-nine years old, who at two years of age was badly burned about the head leaving a large partially healed cicatrix. During his whole life the patient presented a large superficial ulcer the size of the palm of the hand, covered with crusts. In scratching the head the scabs were removed, granulations appeared with ichorous secretions presenting all the characteristics of an epithelioma, the glands becoming enlarged, cachexia, etc.

The cerebral symptoms present were, cephalalgia, vertigo, convulsions of the lower extremities, then paresis of the left leg and complete hemiplegia sinistra. Death occurred two months after entrance into hospital. Autopsy showed perforation of the cerebral theca at level of the middle part of the superior longitudinal sinus. The meninges were perforated and the mass extended into the right frontal ascending convolution and into right lateral ventricle, in which was found some pus. Histological examination confirmed the diagnosis of epithelioma. The bibliography shows but ten cases of this nature.

KRAUSS,

THERAPEUTICAL.

Acromegaly Treated by Thyroid. At the Berlin Medical Society, Nov. 27, 1895, Professor Mendel presented a typical case of acromegaly, in which the only peculiar symptom was typical double temporal hemianopsia. This hemianopic condition, which is a not common complication of cases of acromegaly, was considered by Professor Mendel the result of pressure exerted by the pituitary gland upon the optic chiasm. The thyroid gland tablets producing no effect, the patient was given one gramme of pituitary gland daily for a fortnight. The time was too short to judge of the results, but it was stated that the patient could close her mouth better than before, and the knee-jerk, which had been lost, reappeared upon the left side.—*Sem. Med.*, Dec. 6, 1895.

MITCHELL.

Insomnia and Its Treatment. Maurice de Fleury (*Gazette des Hôpitaux*). In all cases of insomnia not arising from acute pain or irritation of the meninges (tumor or meningitis), it is possible to employ dynamic treatment, which will be efficacious and easy of application, instead of hypnotics. A study of arterial pressure at the radial pulse in those suffer-

ing from insomnia demonstrates that this pathological phenomenon coincides either with a state of marked hypertension or excessive hypotension. Without the aid of drugs, and by the employment of simple physical procedures, it is easy in the great majority of cases to restore the arterial tension to normal and at the same time to cause sleep. It is always useful to add to this physiological treatment, a psychological one, and cause a habit of sleep. There are two kinds of insomnias,—the neuro-pathic, in which suggestion is applicable and the more serious form where the treatment by opium or chloral is justifiable. The insomnia of neurasthenia, that occurring during convalescence from typhoid fever, and that accompanying a condition of low arterial tension, all have the same pathogeny. When a patient with asystole cannot sleep, it is because the arterial pressure is low. If his feeble heart be relieved with digitalis, sleep at the same time becomes possible. In a great number of cases one can substitute the dynamic agents, such as massage, frictions, douches and transfusions, and at the same time caffeine and digitalis may be employed as heart tonics.

FREEMAN.

***Idiocy Without Myx-
cedema Improved by
Thyroid Treatment.***

Dr. Netter, at the Biological Society at Paris, Nov. 30, 1895, read a note on a case of idiocy without myxcedema treated successfully by thyroid. The patient was a child six years of age, progressively cachexic, with puffiness of the face, and thickening of the skin of the legs. The cachexia, the cedema, the skin thickening and the trace of a special albumin, which was found in the urine disappeared under the thyroid treatment. No trace of the thyroid gland could be detected in this child.—*Sem. Med.*, Dec. 6, 1895.

MITCHELL.

***Methods of Prepar-
ing Thyroid Extract.***

At the Société de Therapeutique, on the 11th of December, 1895, there was a discussion as to the value of the different methods of preparing thyroid extract. M. Vigier related his plan, which was as follows: He uses sheep-thyroid, mixing the fresh pulp with pulverized sugar. It is further mixed with carbonate of soda, and with charcoal, in order to hinder decomposition. This preparation has been successfully administered by a number of physicians. In the discussion which followed his brief statement there was a general agreement that the fresh preparations, while more troublesome, were more active than the tablets, extracts and powders. The latter, of course, have the advantages of being always accessible, and fairly constant in their effects. In one case which Dr. Marie treated for six weeks with the natural thyroid, the results were excellent, but after the suspension of treatment for six weeks the symptoms reappeared. In the second course of treatment, preparations of the gland were given, made by evaporation *in vacuo* with the addi-

tion of boric acid. Three times as much was required to produce the same effect as equal weights of the fresh gland, and upon returning to the fresh gland, even, improvement was not so rapid as during the first treatment, a result which the physicians attributed to the fact that the thyroid in the latter instance had been procured from an animal of somewhat more mature age.—*Le Med. Mod.*, Dec: 14, 1895.

MITCHELL.

The Bichloride of Mercury Hypodermically as a Cure for Cerebro-spinal Meningitis.

Consalvi, of Cassli, Italy, reports the results of this method of treatment in nine cases of cerebro-spinal meningitis occurring in an epidemic of grip. Only one case, that of a girl, aged seven, proved fatal, and in this case there was temporarily an improvement following the injection. The dose varied from .005 milligrams to .01 centigram, according to the age of the patient, administered once in twenty-four hours in the beginning and later once in forty-eight hours. The oldest patient treated was nineteen years, the youngest fourteen months. Most of the symptoms were relieved after the first two or three injections though muscular rigidity persisted in some cases until after the seventh or eighth injection. In one patient an acute mercurial stomatitis developed after the tenth injection and in another (both girls) a bloody diarrhoea of short duration seemed to be the result of the mercury. Other therapeutic measures employed were leeches, ice, calomel in purgative doses and bromide or morphine to quiet the patient when necessary with iodide of potassium during convalescence.—*La Semaine Med.*, Jan. 15, 1896.

PRITCHARD.

Treatment of Epilepsy.

Dr. P. Dignat in the *Bulletin Général de Thérapeutique* (Nov. 30, 1895), sums up his studies on the use of vesicants along the seat of aura in epilepsy as follows:

1. The circular vesicants applied along the course of the aura, either at the point of departure, or immediately centrad of it constitutes one of the most efficacious forms of treatment for certain forms of partial epilepsy, with motor or sensory auræ.
2. The treatment is applicable to partial epilepsy *not* due to cranial injury, cerebral syphilis, or any organic cerebral lesion.
3. Observation has shown that this procedure succeeds in cases where other modes of treatment have failed.
4. Finally, this method is absolutely inoffensive and devoid of secondary symptoms such as arise, for instance, after long administration of the bromides.

KRAUSS.

***Flechsig's Method
in the Treatment of
Epilepsy.***

Dr. Antonio Nearro reported to the *R. Accademia de Medicina di Torino*, and republished in the journal of the society, November, 1895, his success with Flechsig's method in ten cases of epilepsy. The cases briefly reviewed are as follows:

Case 1. Imbecile, age 17 years, has had daily four and five attacks, against which the bromides have had no effect. Opium was administered for twenty-four days, when on account of the violent diarrhea it was abandoned, when the bromides were substituted (Jan. 24, 1895). From this time to the end of July, 1895, no further attacks have occurred. His mental condition, congenital, of course is unaffected the stupor, perhaps, being less pronounced than before.

Case 2. Young man, aged 22, gives history of epilepsy for past two years, due to masturbation and alcoholism. Has attempted suicide several times. He has violent attacks, followed by delirium. On January 11, 1895, the opium treatment was began, and continued thirty-eight days, when it was suspended. On Feb. 18th the bromides were began. Dismissed from hospital, without having had any attacks, on April 16, 1895, with instructions to continue with the bromides. Some days later, after excessive drinking, he had a light attack, otherwise has been able to attend to his work as gardener with regularity.

Case 3. Man, age 28, has been an epileptic for five years, following fright from danger of drowning. The attacks are general, occurring at irregular intervals, followed sometimes by attacks of mania, lasting days. Intelligence medium, opium was given on Jan. 20, 1895, and increased gradually to fifty centigrams. On March 9, 1895, the bromides were substituted, and no further attacks were noted.

Case 4. Young man, aged 22, has a series of attacks followed by periods of stupidity and depression. On Feb. 9, 1895, opium was administered, and on the twelfth day the bromides. From then until the end of July he did not suffer any attacks.

Case 5. Man, age 27 years, epilepsy dates back to his 17th year, and followed a fright consecutive to being drawn under water twice by a mill wheel. Tried to commit suicide several times. The bromide cure was only partially successful. On March 18th the opium treatment was instituted, and followed until May 2. The attacks occurred very often during the treatment without, however, the consequent stupor. The bromides were again administered, and to the end of July all attacks had ceased.

Case 6. Man, age 27, has been an epileptic since infancy. Following the abuse of alcohol, the attacks have become very

severe. Preceding his entrance to the hospital he attacked an individual on the street while in a state of post-epileptic mania. The opium was administered from March 23d to May 4, then bromides. He had two attacks, not followed, however, by delirium. Is quiet and busy, but depressed at times.

Case 7. Man, age 29, has been epileptic since infancy, was operated on (trephined) in another hospital, but without success. The attacks occur every few days, followed by stupor. On May 13th the opium was begun, and on June 21st the bromides. The attacks are no longer followed by stupor.

The other three cases are on the bromide treatment preceding the opium, and the author does not wish to make any report of their condition as yet. KRAUSS.

A Case of Sporadic Cretinism, Treated With Thyroid Extract.

By L. Haskoree (*Wiener Med. Wochenschrift*, 1895, No. 43 44).

The author does not recognize, under sporadic cretinism, cases in which there is a congenital absence of the thyroid gland. The patient, 38 years of age, was physically well built, while intellectually her abilities to accomplish anything were very discouraging. A goitre had gradually developed since her eight year.

Treatment with thyroid extract for six weeks showed an appreciable, and in fact, marked diminution in the size of the goitre. The disposition of the patient became one of restless activity, besides being also very irritable. Her powers of comprehension were clearer. As accompanying symptoms there was an increased rapidity of the pulse rate, slight rise of temperature, a copious perspiration, tremor of the upper extremities, and a diminution in the weight of the patient.

MITCHELL.

"Sur la Valeur Hypnotique du Trional Chez Les Enfants."

By Moncorw (*Bull. de l'Acad. de Med.*, 1895, No. 35).

According to this author a very prompt and efficient hypnotic for children is trional. Psychical and nervous excitement is easily controlled, and no bad after effects have been noticed, even though it may be necessary to continue the use of the drug for several days. In small doses (0, 2 — 0, 25), a sedative effect can be obtained.

MITCHELL.

CLINICAL.

Early or Juvenile General Progressive Paralysis.

By Dr. Alzheimer (*Allgem. Zeitschrift fur Psychiatrie* Vol. LII. No. 3, 1895, pp. 533-594).

This long article contains a valuable summary of the thirty-

eight cases of juvenile progressive paralysis, hitherto published. The author also puts on record two cases of his own, into the histories of which he enters very minutely. One of these was a girl of illegitimate birth, her father was a syphilitic; the patient herself had symptoms of hereditary syphilis. At the age of three years, meningitic symptoms? Intelligence medium, memory tardy. At eleven years of age tonic convulsions. She began to menstruate at fifteen, soon after marked diminution of visual acuity, unsteady gait, clumsiness of the hands. At nineteen years of age, St. Vitus' dance and increasing difficulty in walking, blunting of the mental faculties up to marked idiocy, incontinence, decubitus. Admitted to the hospital at twenty-two years of age, undeveloped appearance, marked emaciation, unequal sluggish pupils, tremor of the muscles of the face and of the mouth, paralytic disturbance of speech, reflexes marked by exaggerated, ankle clonus, dementia, exitus letalis seven weeks after admission, paralytic marasmus.

The autopsy, which was made three and a-half hours after death, showed the following: dura mater, adherent; pia mater, cloudy, thickened and adherent; convolutions markedly atrophied, particularly in the frontal and parietal lobes; ventricles greatly dilated; ependyma granular; both thalami apparently hypertrophied; spinal cord does not appear to be macroscopically altered.

Microscopic examination revealed marked degeneration of the lateral tracts of the cord; the posterior columns intact; many ganglionic cells of anterior horn fatty, pigmented and sclerotic; a few in Clarke's column similarly affected; medulla exhibits same changes to slight degree; atrophy nervi optici; in the frontal convolutions, the tangential fibres and the fibres of the second layer have almost disappeared; numerous sections of different convolutions show complete disappearance of demarcation between the individual cortical layers; blood vessels increased in number, the walls greatly infiltrated; there are few normal ganglionic cells, most of them in advanced sclerotic degeneration; increase in nuclei of neuroglia; intense degeneration of tissue of optic thalami, corpora striata, and of parts of the base of the brain under the ganglia; carmine stained preparations show an extraordinary increase of the glia cells.

Case 2. Girl of legitimate birth, hereditary taint on mother's side, father had ante-nuptial syphilis; patient had probably symptoms of hereditary syphilis; during infancy she had hydrocephalus, and her conduct was abnormal. In school she complained frequently of headaches, tendency to somnolence. In 1886 (nine years old) she had a paralytic attack (forced movements of head, without complete loss of consciousness).

A few days thereafter, weak gait, abstraction ; following that excitability and anxiety ; mental functions diminished. In 1888 two attacks of tonic convulsions, with short periods of unconsciousness, followed by vomiting and hallucinations. In 1889, frequent attacks of considerable diversity of character ; psychical condition worse ; unequal, sluggish pupils ; speech and writing disturbances ; twitching of muscles of face ; patella reflexes exaggerated ; ankle clonus ; disturbances of bladder ; hallucinations of hearing. In 1890, at times confused ; increasing dementia ; spastic contracture of right side. In 1891, increasing contracture of left side. In 1894, admission to hospital ; great dementia ; left side and right lower extremity spastic and contracted ; right arm paretic but not rigid ; death in three weeks.

Autopsy twenty hours post-mortem. The following changes were found : dura adherent ; pia, cloudy, thickened, very œdematous, and adherent to frontal lobe ; convolutions markedly atrophied ; brain substance uncommonly hard ; ventricles greatly dilated ; optic thalami apparently diminished in size, particularly the right thalamus ; on the under surface of the cerebellum, a morbid focus of the size of a ten-cent piece. Spinal cord—cervical part of dura considerably thickened ; lateral tracts discolored a distinct gray. Microscopic examination. Spinal cord—intense sclerosis of both lateral tracts and of left anterior pyramidal tracts ; ganglionic cells in places fatty and pigmented ; the degeneration of the pyramidal tracts can be traced to the peduncles where it disappears ; on the floor of the fourth ventricle and in the nuclei of the medulla are many ganglion cells, with extensive pigmentation ; other cells are granular and cloudy.

Convulsions cerebri—in general, show the usual changes ; sections from different convolutions show remarkable poverty in medullary fibres ; sections hardened in alcohol and stained in chromin show unusual width of the first cortical layer ; the second layer is normal, whilst the fourth and particularly the fifth layer exhibit atrophy, which accounts for the apparent hypertrophy of the first layer ; the ganglion cells show marked degenerative changes ; the cells of the basal ganglia are likewise affected.

Case 3. Girl, illegitimate birth ; mother a prostitute and syphilitic ; now probably a progressive paralytic ; father also a syphilitic. Patient had probably symptoms of hereditary lues. At twenty-one years of age, sight diminished ; admitted to hospital ; atrophy of optic nerves ; headaches ; lightning-like pains in the back ; absence of patella reflexes. At twenty-six years, periods of excitement ; speech disturbance, fibrillary twitching of tongue and face muscles ; dementia ; paralytic attacks ; delusions. Opportunity for post-mortem examination not yet presented.

The comparative study of all of these cases of juvenile progressive paralysis may be summarized as follows :

I. PARTICIPATION OF BOTH SEXES.

Of the forty-one cases, twenty were males and twenty-one females, a proportion of 1:1. In progressive paralysis of the adult, the male sex is preponderingly predisposed in the proportion of females as 2-4:1 in cities, and 5-12:1 in country districts.

II. TIME OF ONSET.

AGE.	NO. OF CASES.
9-10	3
11-12	4
13-14	8
15-16	1
17-18	15
19-20	4
21-22	2

This table shows that the affection may appear as early as the ninth year of age. Up to the sixteenth year, there is an increasing predisposition, which diminishes toward those later years when the progressive paralysis of adults begins to appear.

III. DURATION OF THE DISEASE.

The duration of the affection was studied in twenty-three cases as follows :

DURATION.	NO. OF CASES.
2-3 years	5
3-4	4
4-5	5
5-6	3
6-7	1
7-8	3
8-9	2

The average duration is thus shown to be 4.5 years. It is also to be observed that the duration of juvenile progressive paralysis is longer than in the paralysis of the adult.

IV. HEREDITY.

In eleven of the cases an hereditary taint was not elicited. In four cases distinct denial of an hereditary taint is made, whilst in twenty-six cases hereditary predisposition was observed. Including all the cases, there is a percentage of hereditary predisposition of 63.4%. Omitting the eleven cases mentioned, the percentage leaps to 86.6%. In paralysis of the adult the percentage is far less.

V. ETIOLOGY.

Inspection shows at once the important role played by syphilis. In 50% of the cases, syphilis was the positive causative factor. Counting the cases in which the history showed the probable presence of syphilis, the percentage amounts to 85%. Table showing relation of syphilis to Juvenile progressive paralysis:

GROUPS.	NO. OF CASES.
1. History of syphilis defective	7
2. History shows absence of syphilis	3
3. Direct infection positive	3
4. Hereditary syphilis	2
(probable	12
(very probable	14
(positive	

An interesting question in this connection is how many years may elapse before the appearance of paralysis in a subject who has inherited syphilis? The record shows that the disease may make its appearance as late as the twenty-fifth year.

VI. GENERAL INTELLIGENCE BEFORE THE ONSET OF THE DISEASE.

Three cases were weak-minded from infancy; five cases were of limited intelligence; six cases were of medium intelligence; nineteen were of good intelligence; eight cases make no mention of the intelligence. There is, therefore, a considerable number of juvenile paralytics, who from childhood up, show less than average intelligence.

VII. CAUSE OF DISEASE.

A, Mental Symptoms.—In the majority of cases the disease runs its course under the form of simple dementia, without delusions. The absence of other psychical symptoms, particularly delusions of grandeur is striking in juvenile progressive paralysis as compared with the adult type.

C, Physical Symptoms.—The characteristic physical symptoms are: 1. The frequency of the paralytic attacks. 2. The physical paralysis dominated frequently from the beginning, the cause of juvenile progressive paralysis, whilst the mental symptoms are more slow in development. 3. Frequently one side, at times one extremity, is more paralyzed than the other.

The cases can be easily confounded with spastic spinal paralysis, brain tumor, and with multiple sclerosis.

Symptoms pertaining to the pupils, speech, tremor of the muscles of the tongue and face, present nothing of note differing from those in adult paralysis.

In nineteen cases no mention was made of the patella reflex; in seven cases the reflex was absent; in fifteen cases the reflex was exaggerated. Thus in 31.8% there was a combination of paralysis with tabetic symptoms.

The frequent appearance of optic nerve atrophy is worthy of note. It was observed in 12% of the cases. It is relatively less frequent in adults.

The bodily development of juvenile paralytics is very often below the average for the corresponding age in health. The disease appears to hold the physical evolution in check.

VIII. AUTOPSY AND MICROSCOPIC EXAMINATION.

Many observers content themselves with the statement that the post-mortem changes are typical of progressive paralysis. When details are given, thickening, cloudiness, and œdema of the pia, frequent adhesion of the same to the cortex, atrophy of the convolutions, particularly of the frontal lobes, dilatation of the ventricles, ependymitis granulosa, are found. In two cases there was in addition a pachymeningitis hemorrhagica. In one case mention is made of a subdural membrane. In another, a localized softening of the temporal lobes. In the case of Bjeljakow osteophytic thickening of the bones of the skull was found. In the case of the author, a focus was discovered in the cerebellum.

The average weight of the brain was 957 gr. whilst normally it is 1,300 gr.

The microscope reveals nothing different from what is found in case of adult progressive paralysis. In both there is degeneration of the medullary fibres, fatty pigmentation and sclerosis of the ganglion cells, degeneration and infiltration of the walls of the vessels and accumulation of glia cells. In one of the author's cases, the atrophy of the deeper cervical layers was in striking contrast to that of the mere superficial layers. This is not found in adults. The author also calls particular attention to the atrophy of the basal ganglia in his cases.

IX. FREQUENCY OF PARALYSIS IN THE PERIOD OF DEVELOPMENT.

In comparison with the adult form, the paralysis à début précoce is rare. In the institution with which the author is connected, three cases of the juvenile form as against 360 of the adult form, were seen in a period of six years. Elkins (*The Lancet*, 24, 1894), states that in the Edinburgh asylum, from 1889 to 1890, 166 adults and eight juveniles were received. This, the author considers, a surprisingly high percentage.

MEIROWITZ.

**Specail Symptoms
in Certain Cerebral
Tumors.**

Bouveret (*Gazette degli Ospeddi e delle Cliniche*, Nov. 12, 1895).—Apoplectic attacks in cases of cerebral tumors are usually preceded by symptoms which permit the establishment of the diagnosis of the disease—these are cephalalgias, diplopia, vomiting, vertigo and pupillary œdema, the existence of which is disclosed by examination with the ophthalmoscope.

Bouveret has observed two cases in which the presence of a cerebral neoplasm was not manifested by any appreciable symptoms up to the time of the apoplectic or paralytic seizure.

One of the patients, a man, 55 years old, had three attacks, which increased in severity; the first left behind a slight facial paralysis; the second caused an incomplete left hemiplegia; the third increased this hemiplegia and soon resulted in death, which occurred eighteen days from the first attack.

The ophthalmoscopic examination had given a negative result.

At the autopsy was found a glioma the size of a pigeon's egg, occupying the centrum ovale of the right frontal lobe, in front of the radiating pyramidal tract and extending toward the motor area of the cerebral cortex; it was surrounded by an extensive zone of white softening, in which it appeared to float.

The second case was of a lady (*Lyon Medicale*, October 27, 1895), aged 64, who suffered three attacks in one month and a half. The first caused a hemiplegia; the second, a lighter attack, caused her to fall out of bed; the third terminated in death.

At the autopsy there was found glioma as large as a walnut, situated in about the same region as the preceding case. The peripheral area of the growth, richly supplied with vessels and surrounded by a zone of softening, was the seat of an abundant hemorrhage; the blood had filled the ventricles of the cerebrum and cerebellum, but had not penetrated the sub-arachnoid space.

The retina was found normal on both sides. According to Bouveret œdema of the Papilla is present except in tumors of the mesencephalon and of the cerebellum, when the neoplasm occupies the anterior or superior aspects of the brain. In these cases it may frequently be wanting.

H. L. SHIVELY.

Book Reviews.

A REPORT OF THE GYNECOLOGICAL SERVICE OF MOUNT SINAI HOSPITAL, NEW YORK, FOR THE TWELVE YEARS FROM JANUARY 1ST, 1883, TO DECEMBER 31ST, 1894. By Paul F. Mundé, M.D., Gynecologist to the Hospital, Professor of Gynecology at the New York Polyclinic and at Dartmouth College, etc., etc. With forty-eight illustrations. Reprinted from the *American Journal of Obstetrics* for October, November and December, 1895. New York: William Wood & Co., 1895.

This pamphlet of 116 pages, received with the author's compliments, contains one of the most interesting papers we have had the pleasure of reading in a long time. Its title is, however, somewhat misleading, as it is much more than a mere report of the gynecological work done at the hospital during these years. The mass of material at command (3,898 patients, with a total of 3,960 diseases treated), has afforded a wide and rich field for observation and study, which the author has utilized to its utmost.

Under the heading "Remarks on the Diseases Treated," a most interesting description is given of the method of treatment pursued in the various diseases coming under the author's notice. A description is then given of the operations performed (the total number being 1,767, 464 of which were abdominal sections), with some remarks as to the author's opinion of the indications for, and the methods of doing them. Some of the cases reported are unique, and others are of exceptional interest, and the strongest impression left upon the reader's mind on finishing the paper is one of regret that the author did not go more into detail in his description of the cases and his manner of treating them.

GAZZAM.

COLUMBIA COLLEGE IN THE CITY OF NEW YORK. Sixth annual report of President Low to the Trustees. October 7, 1895. Printed for the College. 1895.

As President Low says on page 7 of his report, the time has surely arrived when this institution as a whole, should be known upon the statutes either as Columbia University or as the University of Columbia. The "university spirit" is steadily growing throughout the country, and the aggregation of the different schools of Arts, Law, Medicine, Science, Mines, and the College for Women, under the sheltering wing of the University, which the President's report shows is being steadily accomplished, is for the best interests of all concerned; for, being under one management, each department can materially aid the others.

There has been a steady growth in the number of students attending the University in the past year, notwithstanding the lengthening of

the course in Medicine to four years, and the raising of the standard of requirements for admission to all the professional schools. Liberal donations of money, buildings and books have been made to the University since the last report, which are suitably and gracefully acknowledged by the President; who also takes occasion to set before the Trustees and the public at large, the pressing needs of the University for more money with which to carry on its work. To the President's report is appended the Treasurer's report of receipts and disbursements for the year ending June 30, 1895, showing a surplus in the treasury.

In reading these reports one is struck by the immense amount of work carried on by the University, and by the fact that it is proposed to steadily enlarge its sphere of usefulness. This is especially noticeable in the enlargements of the Vanderbilt Clinic and the Sloane Maternity, which are being made. There are many who will not approve of this part of the "University extension" plan, for they consider that there are enough Dispensary and Hospital facilities in the city already. However, these people will not be consulted.

GAZZAM.

THE PRINCIPLES AND PRACTICE OF MEDICINE. DESIGNED FOR THE USE OF PRACTITIONERS AND STUDENTS OF MEDICINE. By William Osler, M.D. Second edition. 8vo, 1,110 pages. D. Appleton & Co., New York, 1895.

The author of this work is widely known as Professor of Medicine in the Johns Hopkins University and Physician-in-chief to the Johns Hopkins Hospital. This book differs from the first edition in many essentials. The opening article is on typhoid fever, and it has been revised to date. The subject being a specially favorite one with Dr. Osler, much space is devoted to it. Regarding the modes of conveyance of this disease he says: "The possibility of the direct transmission through the air from one person to another must be acknowledged." He favors the Brand method of treatment, and also enforces careful dieting—his rule being not to allow solid food until the temperature has been normal for ten days. Typho-malarial fever is not recognized as a distinct malady. The subject of malarial fevers has been largely rewritten. Great reliance is placed on the value of blood examinations in the diagnosis of these affections. The article on diphtheria has been completely recast. It is admitted that the clinical and bacteriological conceptions are at present not in full accord. A vigorous local treatment from the onset is advocated, although the author admits it is difficult to carry out. The nose is to be held, and as soon as the child opens its mouth, a cork is to be placed between the molar teeth and the local antiseptic application made with a sponge or swab. Many will, I am sure, consider the advisability of such a procedure very questionable. The antitoxin treatment is highly indorsed. The subject of pyæmia and septicæmia has been largely rewritten. He believes that these processes are too often confounded with malaria, and he lays down the rule that "An intermittent fever, which resists quinine, is not malaria." Short descriptions have been added of Bubonic plague and foot and mouth disease. Among the symptoms of the latter, however, there is no mention of anything about the foot lesions. Dr. Osler denies that the use of salicylates in rheumatism influences the duration of the disease. Under an alkaline treatment he believes that cardiac complications are less common. Considerable space is devoted to the diseases of digestion, but the methods of the clinical examination of the stomach are omitted. The reason given is that these more properly belong to a

work on diagnosis. This appears somewhat strange, for the clinical examinations in connection with the diseases of the heart and lungs are fully explained, and in the section on kidney diseases five tests for albumen in the urine are described. The article on appendicitis has been rewritten and at considerable length. According to Dr. Osler, recovery is the rule. Surgeons claim that this getting well does not mean much, the patients having recurrences and being constantly liable to the graver accidents of the disease. This he considers an unduly dark picture, as he knows of a number of cases where, after one or two attacks, the patients remained in perfect health. At the same time, he says, there is no medicinal treatment of appendicitis, and that no remedies will control the disease. The use of salines he condemns as a most injurious practice. When by the third day the features of the case point to a progressive lesion, with or without tumor, he considers that operation is indicated. A new section has been added on diseases of the mesentery. The subject of diseases of the nervous system is preceded by an admirably written introduction on the anatomy and physiology. These diseases are then very fully described for a work of this kind. There are eleven very helpful colored diagrams, and most of the important points, which have arisen in this connection during the past three years, are incorporated.

There is also a lengthy article on animal parasites. The author here expresses his indebtedness to Dr. Stiles, the leading authority on parasites in this country, for valuable advice relating to this subject. The most attractive feature of Dr. Osler's book is the symptomatology, for his pictures of disease are almost without any exception very clear and true. The numerous temperature and blood charts scattered through the work must certainly prove interesting and helpful to the student. Nearly all the known diseases are described, and the latest researches on the subject given. There is comparatively little space devoted to treatment, except in connection with a few diseases. The author evidently is no enthusiast on drugs, and one often misses the mention of some of the newer and valuable remedies. He appears sometimes to have more faith in the older methods of treatment than in the new ones. As examples of this may be mentioned, that after enumerating some of the local applications for erysipelas, he says: "Perhaps as good an application as any is cold water, which was highly recommended by Hippocrates." For apoplexy, where there is increased arterial tension, he advocates prompt bleeding. In the treatment for scurvy, among other things, a steel and bark tonic is mentioned. With few exceptions the subject of pathology is presented in rather a condensed form.

There is a very full and carefully prepared index, and the general make-up of the book is all that can be desired.

FREEMAN.

TEXT-BOOK OF GENERAL PATHOLOGY AND PATHOLOGICAL ANATOMY. Richard Thoma. Translated by Alexander Bruce, M.A., M.D., F.R.C.P.E., F.R.C.S.E., Vol. I., with 436 illustrations. Macmillan & Co., 66 Fifth avenue. Price, \$7.00.

Volume one of this most difficult branch of medicine is based upon a very careful and complete consideration of all the modern literature upon this subject. Special mention should be made of its richness in original research and information. The illustrations are profuse and excellent. Without going into details we will limit ourselves to a short review of the contents of the book.

The contents consist of an introduction and an division into three

sections. Section one treats of general etiology; section two of the elementary forms of diseases, and section three, of the combined forms of diseases.

Under Section one, trauma, intoxications and poisons, infection and parasites, heredity and malformations are carefully considered. The chapter on infection and parasites is well worthy of attention, on account of its clear and concise description of our modern views of infection, and secondly, its completeness in its description of the various parasites.

Section two, which is devoted to disturbances of the circulation of the blood and also disturbances of tissue nutrition, shows an exhaustive study of this delicate subject. The most careful research seems to have been made, and the result is that much is given to us that is original. For a clear understanding of the fundamental principles which underlie inflammation, hemorrhage, thrombosis, embolism, necrosis, etc., hyaline degeneration, glycogen infiltration, and the formative metamorphoses in the various tissues, I cannot too strongly recommend a careful reading of this section.

Section three is devoted to pathological conditions and inflammations of the different organs of the body. Here we also have the autonomous new formations and general diseases considered.

We hope that Vol. II. will be a fitting companion for this work, which bids fair to become a standard work on pathology. It is a book which is thoroughly modern in its views. Especially is it to be recommended to those students who wish to combine their clinical with their pathological work. The association between these two is constantly referred to in the various chapters.

A.

AN AMERICAN TEXT-BOOK OF OBSTETRICS FOR PRACTITIONERS AND STUDENTS. By James C. Cameron, M.D., Edward P. Davis, M.D., Robert L. Dickinson, M.D., Charles Warrington Earle, M.D., James H. Etheridge, M.D., Henry J. Garrigues, M.D., Barton Cooke Hirst, M.D., Charles Jewett, M.D., Howard A. Kelly, M.D., Richard C. Norris, M.D., Chauncey D. Palmer, M.D., Theophilus Parvin, M.D., George A. Piersol, M.D., Edward Reynolds, M.D., Henry Schwarz, M.D., Richard C. Norris, M.D., Editor; Robert L. Dickinson, M.D., Art Editor. With nearly 500 colored and half tone illustrations. 8vo, pp. 1,000. Philadelphia: W. B. Saunders, 1895.

A better illustrated and more beautiful text-book of obstetrics has never appeared from any press. The beauty of this work is its most striking element on careless perusal. No expense seems to have been spared to render it as nearly perfect in an æsthetic sense as lithography, engraving and photography could make it. This is, however, subservive to the excellent text that accompanies the illustrations. A glance at the list of authors will show the names of men recognized as prominent teachers and obstetricians in this country. In the general clearness of style, the excellent judgment and the correct teaching, which characterize the greater part of the work, it is refreshing to the reviewer who is obliged to wade through too much trash from the American press. In this respect, too, the work will give American obstetric workers a deservedly high position abroad.

The book is divided into the following six sections: I. The generative organs, including their anatomy and physiology; II. Pregnancy, including its physiology, diagnosis, hygiene, management and pathology; III. Labor, with its physiology, conduct, mechanism, and dystocia; IV. Puerperium, together with its physiology, diagnosis, management and pathology; V. The Newborn Infant, its physiology and pathology; VI. Obstetric Surgery, including instrumental operations, manual operations, and caeliotomy for sepsis in the childbearing period.

The extended and detailed review, which the work deserves, cannot, unfortunately, be given, for lack of space, but a few important details will be pointed out. The chapter on the albuminuria of pregnancy is conservative, and its author wisely and carefully tries to differentiate between "physiological" or slight albuminuria and that which is followed by toxic or uræmic symptoms. The point, that major operations may be performed upon a pregnant woman with safety to herself and her fetus, is clearly elucidated; but due caution is observed in not recommending unnecessary operations during this period.

The pathology of abortion might have been more fully considered, and some recent literature on the subject is neglected in the chapter on treatment. It is conservative and safe in its teaching, however. Under "extra uterine pregnancy," it is a pleasure to see the electrical treatment once and for all consigned to oblivion, in contrast to the shilly-shallying of some recent gynecological text-books.

The succeeding chapters on normal labor, pelvimetry and the puerperium, embrace all the good features of modern teaching. The treatment of "puerperal infection"—the term chosen instead of "puerperal fever" and "puerperal septicæmia"—includes hysterectomy, when it is indicated.

Embryology is as thoroughly entered upon as possible, and deformities are clearly described and well illustrated. A full bibliography follows each chapter.

Accouchement forcé and Dührssen's cervical incisions are not touched upon sufficiently in the chapters demanding their consideration, and dilatation of the cervix in placenta prævia by means of the colpyrentem is but mentioned. But these are minor faults in a work that is replete in interest for every student of obstetrics, be he medical student, practitioner, or specialist. The book is an important and splendid acquisition to American medical literature. BRICKNER.

PREGNANCY, LABOR AND THE PUERPERAL STATE. By Egbert H. Grandin, M.D., Consulting Obstetric Surgeon to the New York Maternity Hospital, etc., and George W. Jarman, M.D., Gynecologist to the Cancer Hospital, etc. Illustrated with 41 photographic plates. Philadelphia: The F. A. Davis Company, 1895. Pp. 261. Price, \$2.50.

This is a companion work to the author's recently published "Obstetric Surgery," and appears in the same form and binding. Like the former, it is eminently a practical work, and is, moreover, a book intended more for reference by the practitioner than for the use of the student, pre-supposing, as it does, a knowledge of obstetrics and obstetrical literature on the part of the reader.

The diagnosis, duration and hygiene of pregnancy are admirably presented, and the differential diagnosis of gravidity is particularly well

drawn. Under the "pathology of pregnancy," the authors, drawing from their personal experience, prefer version to the forceps operation. Opinions may well be at variance as to whether the shock is less in the former than in the latter procedure, in the face of cardiac disturbances, for instance. Certainly men of authority have put themselves on record as preferring the application of the forceps to a version in precisely such conditions.

The authors properly demand, on the part of the accoucheur, a correct diagnosis of the fetal position and presentation. How often this is not done is known to those who are frequently called into consultation.

Part II. embraces the phenomena of labor, its clinical course, and the management of normal and abnormal labors. It concludes with a very readable and valuable chapter on the "care of the newborn infant."

"The puerperal state" concludes the volume. The chapter on the normal puerperium is without fault; it is perfect. It corresponds with the best modern obstetric teaching, and is presented in a lucid distinct, readable style. The pathological puerperium is discussed in the second, and last chapter of the book. Exception might be taken in part to the terminology, but the subject is so clearly set forth and teaches its lesson of *noli tangere* so plainly, that criticism of words is scarcely called for.

The work is distinguished by its photographic plates, which are in the main clear and didactic; but they have the faults of many such illustrations, in that the forms and faces of the operators obscure the principal features intended to be shown. Plate XL. is a case in point. The book is well gotten up and deserves a wide patronage. B.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE, FOR THE USE OF PHYSICIAN AND STUDENTS. By James Tyson, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Physician to the Hospital of the University; Physician to the Philadelphia Hospital; Fellow of the College of Physicians of Philadelphia, etc., etc. Ninth Edition. Revised and Corrected. With a Colored Plate and Wood Engravings. Philadelphia, P. Blackiston Son & Co., 1895.

The mere fact that a ninth edition of this work has become a necessity speaks for its popularity, and its popularity is due to its worth and usefulness. This is true not alone of America, for very recently the *Société d'Éditions Scientifiques* has published a translation of the eighth edition, showing conclusively in what high estimation it is held abroad.

Very few changes have been made in this work. There have been some additions, and some paragraphs of minor importance have been omitted. These alterations, with some corrections made necessary by advances in the science, tend but to increase the value of the book without altering its familiar character.

Physicians and students will find this new edition of "Tyson's Practical Examination of Urine" as trustworthy, and as reliable a guide in the analysis of urine, as its predecessors. The simplicity of the methods described, together with the minute details given by the author renders it easy for the student to learn urine-analysis with its aid; while

on the other hand, the physician will find as complete a description of the more scientific methods of examination of urine as could be expected in a work of this size.

The concise but clear treatise on the "Differential Diagnosis of Renal Diseases" will be read with pleasure and profit by the busy practitioner, who will also find the "Tables for Reducing the Metric System into the English and *vice versa*, and for Converting Degrees Centegrade to Degrees Fahrenheit and *vice versa*," of great convenience.

GAZZAM.

ASEPTIC SURGICAL TECHNIQUE: WITH ESPECIAL REFERENCE TO GYNÆCOLOGICAL OPERATIONS, TOGETHER WITH NOTES ON THE TECHNIQUE EMPLOYED IN CERTAIN SUPPLEMENTARY PROCEDURES. By Hunter Robb, M.D., Associate in Gynæcology, Johns Hopkins University, Professor of Gynæcology, Western Reserve University, Cleveland, O. Illustrated. Philadelphia, J. B. Lippincott & Co., 1895.

From the introduction, by Howard A. Kelly—to whom, by the way the book is dedicated—to the appendix, this work holds the attention of the student, as well as of the practitioner of the aseptic principles. It is a truly scientific exposition of the principles of aseptic surgical technique, as would be expected, coming as it does from the pen of such an able and careful observer and experimenter as Dr. Robb. The diction throughout is clear and concise, yet at the same time the author at no time sacrifices thoroughness to brevity.

He emphasizes the importance to the surgeon of a bacteriological training, demonstrating plainly that such a training is practically necessary in order to establish on a scientific basis, a thorough surgical technique on aseptic principles. For, without at least an elementary training in bacteriology, no surgeon can fully appreciate the meaning of *surgical cleanliness*, that cardinal virtue of latter-day surgeons. A terse description of the most important micro organisms concerned in sepsis and wound infection, is followed by definitions of asepsis and antisepsis, and the wise remark is made: "But in our enthusiasm for aseptic methods we must not by any means lose sight of the importance of a perfected mechanical technique."

After considering the general principles of sterilization, and comparing sterilization by dry and moist heat, the disadvantages and impracticability of chemical disinfection are shown, and the author proceeds to make a practical application of the principles of sterilization. The necessity of all those concerned in an operation paying the strictest attention to the most minute details is insisted upon. Special operating suits are advised, and a detailed description given of the most improved method for the preparation of the surgeon and his assistants.

The manner of preparing patients for operations, with the means employed to obtain an aseptic field is described, and it is advised that the patient be under observation for a few days previous to the operation, with rest in bed in some cases; then, the proper preparatory, or pre-operative treatment is minutely gone into, the author urging us to "aim at as thorough an aseptic technique in plastic work as in abdominal surgery."

Noteworthy among the admirable features of the book are the very complete "lists of instruments necessary for various operations," and the numerous cuts of instruments which are shown. The author con-

siders that "it is important to write out lists of the instruments that are used in the different operations and to keep them where they can be easily consulted on each operation day, so that none which will be needed will be forgotten." For sterilizing the instruments the method of Schimmelpusch is advised, *i. e.*, boiling for five minutes in a one-per-cent. soda solution, after thorough cleansing with soap and water.

In considering sutures, ligatures, etc., the author says that his preference, based upon bacteriological experiments made by Dr. Ghiskey and himself is as follows: (1) silkworm gut; (2) silk; (3) silver wire; (4) catgut. He then states that silk is the material most commonly used and proceeds to consider it, and to give the best methods for preparing and preserving it aseptically. The use of silkworm gut is advised for certain purposes, while the use of silver wire is not advocated, inasmuch as it "has no advantages over silkworm gut" and "is much more expensive, and is more apt to injure the tissues." In speaking of catgut the author says in the body of the book: "Catgut would be an almost ideal material for sutures, but, unfortunately, we have as yet no thoroughly reliable method for rendering it absolutely sterile without at the same time making it so weak as to unfit it for our purpose." In the appendix, however, he describes the method of Krönig as given in the *Centralblatt für Gynäkologie*, No. 27, 1894; and says: "By this method we can obtain a suture material which is not only sterile, but is not impregnated with any irritating substance." This would seem to put catgut at the head instead of the foot of the list of suture and ligature materials.

For the dressing of such wounds as it is not desirable to close hermetically, absorbent cotton and gauze are advised together with bandages, all previously sterilized by steam, and afterwards dried. The use of dressings impregnated with antiseptics is condemned as useless, and in some cases even harmful. Methods for the preparation of some of the impregnated gauzes are, however, given. Gauze sponges are advised, and the best way to prepare and keep them, as well as marine sponges is described.

Drainage in abdominal surgery is considered unnecessary in the vast majority of cases, and when it is used, capillary drainage by means of gauze carried through glass tubes is considered the best. The use of rubber gloves is strongly advocated, and the proper way to sterilize all kinds of rubber goods is given.

Warm sterile salt solution is considered to be the most satisfactory irrigating fluid, and solutions of sublimate and of carbolic acid are condemned, especially in the abdominal cavity. Under the head of *Occlusive Dressings* bichloride celloidin and iodoformized celloidin are considered the best.

The descriptions of the ideal operating-room, the various operating tables, instrument tables and cases and other accessories, are interesting and properly prepare one for the description of the method of properly organizing operations, and of the maintenance of an aseptic technique during operations; which subjects are gone into in great detail. We note that the author considers the Trendelenburg position inconvenient, in the majority of cases unnecessary, and in septic cases objectionable; and that he advocates closing abdominal wounds in layers, and hermetically sealing them with bichloride celloidin.

The chapter upon the post-operative treatment of cases is most interesting and instructive, inasmuch as the author goes into such details as are not generally to be found in text-books. We note also that he advocates the use of the abdominal bandage for six months to a year after coeliotomies.

A chapter is devoted to "Anæsthesia as an Aid to Diagnosis; its Importance in General Surgery and Gynæcology—Preparation of the

Patient, etc.," the author showing the great advantages, and few disadvantages to be derived from its use.

While every surgeon cannot be a thorough bacteriologist, Dr. Robb shows in Chapter XVI. how he can greatly aid himself in making diagnoses, and aid the cause of science generally by a practical knowledge of the subject; for, as he says, "other things being equal, that surgeon will make fewest mistakes and obtain the best results who knows how to utilize to the utmost the knowledge and technical methods of all departments of medical science."

A most valuable description of the methods for examination of the interior of the female bladder, and the catheterization of the ureters follows, with cuts showing the different instruments used and the proper position in which to place the patient for examination; and the book closes with a chapter on pathological examinations, preparation and examination of specimens, and the proper manner of conducting autopsies.

We will await with interest the next edition of this book which we predict will not be long in forthcoming, as it is a valuable work.

GAZZAM.

THE NON-HEREDITY OF INEBRIETY. By Leslie E. Keeley, M.D., LL.D. S. C. Griggs & Co., Chicago.

This is a book of 350 pages. In the preface the author claims that inebriety is a disease that can be readily cured, and not hereditary. He begins the work by a consideration of various medical creeds and medical development. He discusses the question of dogma, creed and ethics in rather an illogical way. He begins in chapter two to declare that it was not until eighteen years ago that the cause of disease was understood, and that it is now demonstrated, thanks to Pasteur, Koch, Sternberg, Bastian and Tyndal, discoveries in the field of microscopy, that the microbe causes disease. These men, with many others, have given to science the outcome of their labors and investigation, and to them, he admits, we owe a debt of obeisance and gratitude.

Now, it is interesting to note here the relationship he bears to such men who think or work for science, and it is well to note the ethical position he takes before in any way we could consider pro or con his theory of inebriety. We shall quote: "The germ theory was ridiculed for fifteen years, while its defenders were ranked as 'quacks.' Electricity, hydrotherapy, massage, all were classed in their beginning as quackery. But the 'grand old profession' generally ends by adopting everything. It will some day, if its morals improve, adopt all the pathies, including Christian Science. It will fight the question many years, possibly, but will some day incorporate into the code of ethics a provision which will give a physician proprietary right to his inventions relating to surgical instruments and remedies. All ethics, except medical ethics, now grant such privileges. There is nothing in the ten commandments, nor in the sermon on the mount, nor in the Saviour's amendments to the ethics of Moses that is designed to prevent any man from enjoying the rights and benefits of his own labor of brain or muscles, his inventions, his discoveries, his thoughts, his property. 'Thou shalt not covet thy neighbors house, nor money stocks, bonds, lands, wife, nor his proprietary rights that are his by inheritance, acquirement and discovery, even including his cures for disease.' We must infer by this that Dr. Keeley is an inventor, and that he has patent rights upon his theory of inebriety which relates entirely to his own interests. The scientists of the past fifteen years, evidently have

been very foolish according to his tenets in divulging their discoveries for the sake of science, they should have all had a good string attachment of a monetary character, and if such had been the case our author would have been obliged, we fear, to go into another field of lucrative inventions.

We are in the light of Dr. Keeley's ethical non-culture obliged to consign his theory and book to the class of chimerical inventions, not worthy of consideration further than a condemnation which he evidently invites and would label persecution.

There is a "grand old profession" however, and always will be, whose purpose is to work for others and who do not invent. This "grand old profession" does not, nor ever will include the Keeley's or any other theory or remedial inventor. We are positive also that in quoting the Divine laws that our author is not acquainted with the parable of the good Samaritan, or the commands of the Saviour, "Do unto others as you would have them do." In endeavoring to bring Scripture to bear upon his sordid argument he induces the X ravs upon the "talent in the napkin," and the monument of praise to "Thou good and faithful servant." No, Dr. Keeley, your secret remedies and your inventive theories may bring you millions, but your "creed" and "greed" will never come within the ethics of "the grand old profession" even if you really were good enough to divulge the mystery of what you have lead many to believe you have invented.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By Edwin J. Houston, Ph.D., and A. E. Kennelly, Sc.D. The W. J. Johnston Co., New York Company.

This little volumn is one of the elementary electro-series published by the Johnston Company, and is intended to supply a want in presenting to the profession reliable information as to the physics of electricity so far as it is practical and necessary in the various forms of apparatus used in medicine or surgery. The authors aim to explain along analogous lines the phenomena of electricity that pertains to electro-static electric, or the magnetic circuits, that, is the circutial method and divests the subject of unnecessary speculation, and deals solely with the current itself in all its variations of direction, force and regularity. It, without question, is a book that appeals to the teacher as a worthy text book. It will give no wrong inferences, nor does it in the description of various forms of apparatus deal with anything but what is absolutely essential to illustrate a point to be made. It is not therefore the harbinger of an advertisement and the points of illustration are so simple that those desirous of selecting various batteries, or forms of electrical apparatus have no difficulty in understanding what is necessary for a suitable instrument. It is a desirable book for those who know nothing of physics. It is, however, by no means a primer, it is advanced to a degree that one must read very carefully. It will prove of decided benefit to those who wish to start right, before taking up the medical side of the subject.

THE APRIL MONIST.

The April *Monist* opens with two articles on Roentgen's X rays, by leading European scientists. Prof. Ernst Mach, of Vienna, describes a method of applying the new rays to an old device invented by him for

taking stereoscopic or solid pictures of objects. The usual Roentgen pictures appear flat. By the suggestive modification of this process they are made to appear in solid relief like real objects. Professor Schubert, of Hamburg, writes at length on the X rays, reviews in simple language their history, embracing the researches of Faraday, Geissler, Hittorf, Pluecker, Crookes, Lenard, and Roentgen, discusses the physical character of the rays, and lastly expounds the methods of work so successfully employed in the Hamburg State-Laboratory. Two beautiful actinograms accompany this article—one of a fish with shells in its intestines, and one of a lady's hand into which a needle had been run. No article has appeared on this subject more adapted to the popular comprehension.

Edward Atkinson of Boston, practical financier and economist, writes a timely article on *The Philosophy of Money*. He has compressed a wonderful amount of logic and facts into the brief space of this essay, which should be read by all who are desirous of knowing the origin, history, and purpose of our mediums of exchange. A well-known Polish philosopher, W. Lutoslawski, of Kazan University, Russia, makes his début to the American public in a striking and original article, *In Search of True Beings*, wherein he describes the philosophy of Polish individualism.

Remarkably fine is the contribution, *From Animal to Man*, by Prof. Joseph Le Conte of Berkeley, California. Prof. Joseph Le Conte is one of the foremost scientists and thinkers of America and his work has all the marks of high native talent and broad scientific culture. His article traces in a lucid manner the differences and common features of animal and human intelligence. The same spirit of philosophical culture pervades the article by Prof. J. Clark Murray on *The Dualistic Conception of Nature*, which depicts clearly and tersely the fortunes of dualistic notions both in philosophy and in religion. More profound and technical in the article *Nature and the Individual Mind*, by Prof. Kurd Lasswitz, a noted German philosopher, who treats in a masterly fashion one of the most abstruse and difficult of philosophical problems.

The last article is a discussion of *The Nature of Pleasure and Pain*, by Dr. Paul Carus, with particular reference to the theory of the famous psychologist, Prof. Th. Ribot.

The usual Literary Correspondence from foreign countries and a rich selection of book notices, etc., conclude this number, which takes equal rank with the brilliant numbers that have preceded it and on which have appeared the names of Weismann, Ribot, Topinard, Lombroso, Romanes, and Lloyd Morgan. The Open Court Publishing Co. : Chicago and London.

Correspondence.

TO THE EDITOR OF THE JOURNAL OF NERVOUS AND MENTAL DISEASE.

Sir:—In the January number of the JOURNAL OF NERVOUS AND MENTAL DISEASE, I notice a report of a case of epilepsy at eighty, by Dr. Frederick P. Simpson, of Hartford, Conn.

In reference to this case, I wish to say that epilepsy in advanced life is not so rare, as the writer would have us believe.

Senile epilepsy, or epilepsy following senile changes in the brain, are quite common to the experience of most alienists and asylum physicians. Although I do not hold in mind in my experience any cases in which the patient had reached the age of eighty, I do recall two cases of epilepsy occurring after seventy. Upon autopsy, both these cases presented marked senile changes, such as opacities and fibrous plaques, which were found throughout the blood vessels at the base. It is possible for us to have atheroma and calcification at the base of the brain and yet have almost a normal radial artery. In such cases nothing short of an autopsy would exclude the senile changes as a direct causative factor in these apparent idiopathic epilepsies of extreme old age. Dr. Seidel, of Berlin, has pointed out clearly in his monograph upon "Diseases of Old Age," the very frequent occurrence of endarteritis and atheroma, following as a natural consequence of simple old age changes without the intervention of any acute febrile process.

Nevertheless, it would be interesting to know the state of the heart and arteries in this case of Dr. Simpson's, even if an autopsy was not performed. Very truly,

B. PIERCE CLARK.

Craig Colony, March 2, 1896.

Sonyea, N. Y.

THE
Journal
OF
Nervous and Mental Disease

Original Articles.

INSANITY IN YOUNG WOMEN.

BY CLARA BARRUS, M. D.

DURING nearly three years' connection with the Middletown State Homœopathic Hospital, 121 insane girls and young women have come to my notice.

The *ages* of these patients range from 11 to 35. From the ages of 11 to 17 there were 6 cases; from 17 to 25, 58 cases, 23 of which had the earlier attacks, or the beginning of the present attack between 13 and 23. From 25 to 30 there were 27 cases, 21 of which had their initial attacks between 16 and 25. From 30 to 35 there were 30 cases; 27 of these had the outbreak of insanity between the ages of 17 and 26. It will, therefore, be seen that by far the greater number of cases of insanity occurred between the ages of 17 and 25.

The *nationalities* represented are: American 88, Irish 10, Germans 7, Hebrews 4, English 4, Colored 3, French 2, Bohemians 2 and 1 Swede.

Civil condition.—106 of the patients were unmarried, 15 married; 7 of the unmarried had illegitimate children, and these 7 children, together with 19 others borne by the married patients, make a total of 26 children borne from these 121 insane young women.

Social status.—71 middle class, 19 high class, and 31 pauper patients. These figures are, however, mislead-

ing, as many of the so classed middle and also high class patients have ultimately become public charges, owing to reverses, duration of insanity, etc. The attempt at classification refers rather to the original status in society of the patient.

Education.—Those having a common school education number 63, an academic 36, a collegiate 7; 7 patients read and write only, and 8 are said to have had no education at all.

Occupation.—Fifty out of the 121 patients had no occupation, 18 were housewives, 17 domestics, 12 teachers, 8 students, 6 musicians, and the remaining few were divided up between stenographers, clerks, dressmakers, artists, elocutionists and nurse girls.

Forms of Insanity.—An attempt to classify cases of insanity occurring during pubescence or adolescence meets with even more difficulty than we experience in the classification of insanity in adults. For, while some patients present well marked periods of excitement with the accompanying maniacal symptoms, and others show the profound depression and the distressing concomitants of melancholia, still each case is characterized by a peculiar contradictoriness and uncertainty belonging to adolescent insanity. Rapid alterations of mania and melancholia in the same individual, without the distinctly marked cycle of *folie circulaire*, make it difficult to classify the individual case. Delusions of personal importance and of persecution, or extravagant notions of grandeur and power, make us doubtful how to class the cases which, had they the same delusions in adult life, we should class as cases of paranoia, or some even as general paresis. Nevertheless, an attempt at classification of the cases under consideration has been made. There were found to be 33 cases of acute mania, many of which are recurrent, and three or four are puerperal. Seventeen cases of sub-acute mania, 9 of chronic mania, 22 of acute melancholia, 6 of chronic melancholia, 5 of circular insanity, 14 of terminal dementia, 3 of primary dementia, 8 of epileptic insanity, and 4 of imbecility with mania. Many of the cases now classed as dementia terminal were admitted to the hospital as cases of mania or melancholia, but have drifted into dementia in later years.

Alleged causes of insanity.—When patients are brought to the hospital the friends are asked to state, so far as they know, the cause of the outbreak of insanity. They generally give some one event or experience as though

that were the only cause—the fact being, usually, that it was the culmination of a long train of pernicious influences in a person already predisposed by heredity and environment to mental disease. In many cases three or more causes are given in one individual, namely, heredity, overwork and death of mother; or, predisposition, masturbation, and religious excitement.

Fifty-nine of our 121 cases have acknowledged insane heredity; there are 26 cases attributed to overwork and worry, 10 to masturbation, 10 to domestic worries, 11 to child-birth, 7 of whom bore illegitimate children; 9 to disappointment in love; in 9 more the causes were unknown, 8 were attributed to over study, 6 to religious excitement, 7 to traumatism, 8 to epilepsy, 7 to physical disease, and 4 to fright from attempted rape. There were also assigned as causes intemperance, novel reading, infantile convulsions, chorea, sunstroke, "mind cure," powerful drugs, bicycle riding, the establishment of puberty, suppression of the menses; death of friends, lawsuits, &c.

Insane inheritance.—It is generally conceded that heredity is the most potent etiological factor in the production of adolescent insanity. There is, however, such a tendency on the part of the relatives to deny the presence of insanity in their families, that alienists say we can safely multiply the acknowledged cases by two and thus reach a more nearly correct result than if we accept the statements of relatives concerning this matter. The more the insane temperament is apparent in the relative the more persistent is he in denying or concealing the existence of mental disease in the family. Patients are sometimes brought to the hospital by relatives who so evidently manifest the neuropathic constitution by their excitement and flightiness of manner that it is difficult to determine at a glance which is the patient and which the accompanying friend. In a few instances we are tempted to suggest to the patient that she take the accompanying relative back home and get her duly examined and committed, the patient herself being allowed to go "scot free."

Of the 121 patients, in 50 the history of insanity in the family is denied; concerning 7 it is unascertained; 5 others come from distinctly neurotic, though not insane, families, and 59 are known to be heavily weighted with an insane inheritance from one or more relatives.

Of the acknowledged insane inheritance in the cases

under consideration, 16 had insane mothers, 13 had insane fathers, there were 23 cases showing insanity of paternal relatives, 18 maternal, and in many instances the records fail to show from which parent the taint was derived. In 8 cases there are recorded proofs of insanity from both maternal and paternal relatives.

Aside from the direct connection of insanity in father or mother, brother or sister, there are grandparents and great grandparents, cousins and aunts and uncles galore.

Patients come to us weighted with an inheritance from two, three, four and more insane relatives. "I'm fairly saturated with insanity," said one unfortunate girl during an attack of acute mania. Discouraging as such cases seem, some of these patients make good recoveries, although, of course, the tendency to recurring attacks is great. Some instances of two or more insane relatives in the same individual have the added complication of the transmission of insanity from both the paternal and maternal branches. One is led to inquire: What chances for recovery has a young girl weighted at the outset with an insane father and two maternal aunts? Or another who has a father, brother and a paternal aunt and uncle insane? Or still another who has an insane mother, a paternal grandfather and a maternal grandmother? One girl had a father insane, and five relatives had already committed suicide.

Two of these 121 cases were twin sisters, who have been patients at the hospital for five years. A brother was also here for a time; the three patients had attacks of acute mania grafted on to imbecility. These afflicted young people were brought here by parents, both of whom were imbeciles, and there was insanity in a paternal aunt as well. The twin sisters became terminal dements. Nature thus put a veto on the continuation of a stock which could have been discontinued one or two generations ago.

Accompanying diseases.—The insane are subject to the same physical ailments as are the sane, although the manifestations of disease are altered in many instances. No mention is made here of physical troubles except those from which the patients were suffering on admission. They are as follows: Epilepsy, 8; pregnancy, or the puerperal state, 5; cystitis, 4; dyspepsia, 5; anæmia, 3; phthisis, 2; tuberculous diathesis, 2; valvular heart disease, 2; acne vulgaris, 2; psoriasis, 1; cerebral meningitis, 1; paralysis of arm, 1; neurasthenia, 3; chronic

laryngitis, 1; convalescent from typhoid fever, 1; facial neuralgia, 1; curvature of spine, 1.

Gynecological troubles.—Disorders of this kind are not conspicuous among these patients; 76 of these 121 patients were not examined owing to their youth and to the absence in most cases of symptoms demanding such investigations. Of the 45 examined there were found the following conditions: Sixteen cervical erosions, 8 retroversions, 3 anteversions, 1 anteflexion, 2 latero-versions. Two patients had previously had ovariectomy performed, and one had had clitoridectomy. Two of the married ones had sub-involution and one had ruptured perineum. There was also one case of vaginismus, and one having uterine polypi.

Menstruation.—The relation of menstruation to insanity, or of insanity to menstruation, is hard to determine. In some of these cases the insanity was directly dependent on menstrual suppression; in some the maniacal attacks appeared only at the time of menstruation, there being a complete lucid interval between; In two of the cases, aged eleven and fourteen, puberty is not yet established. Several of the cases had a history of the establishment of puberty postponed till the eighteenth or twentieth years. Many of the patients have amenorrhœa for a time; the majority of them show menstrual irregularity during acute attacks, although many preserve as much regularity as though they were sane. Most of them are more or less excited at the periods, although it is not uncommon to witness an abatement of the motor activity and the cerebral restlessness in maniacal cases, during the menstrual flow, and a disappearance of the gloom and apathy in the cases of melancholia.

Physical degenerative signs. Among these insane patients may be noted certain *stigmata* which show them to be descendants from degenerated stock. Six of them have pronounced twitching of facial muscles, *tics*, etc.; eight present varying grades of imbecility with defective or tardy development of physical structures; four are deaf, and two are deaf mutes; eleven have the high-arched, V-shaped palates which characterize them as degenerates; four have the peculiar, wavering, restless eyes characterized as neurotic eyes; four lisp; three stammer; three are prematurely grey; six have marked asymmetry of features; eight have irregular ears; two are left-handed; one has defective sexual organs; one stra-

bismus; one had premature loss of teeth and one had chorea.

A large number of the cases of chronic insanity present unsymmetrical contraction of the facial muscles, giving their countenances a peculiar distorted appearance.

Perversions. Among the perversions noted in these cases, the one which occurs the most often is that of masturbation, there being forty-two cases, but it must be remembered that while it may be the cause in some instances, it is the concomitant and the result of the existing insanity in many more. Twenty-seven of the cases were suicidal, twenty-two homicidal, and twenty-two others both suicidal and homicidal. Thirty-seven of the cases were profane and obscene, these deplorable symptoms being observed in girls who have had the most cultured antecedents. Most of the maniacal cases are filthy during a part of their illness, and the demented ones are almost invariably so unless carefully watched. Their filthiness concerning excretions and saliva is something incredible to all except those who have the care of them.

A large number of them aside from suicidal tendencies attempt to mutilate themselves in various ways; the self-worrying disposition which manifests itself in biting the nails to the quick, is often carried further, and the skin is picked and mutilated till it is rendered unsightly with ineradicable marks. They also pinch and bite themselves, and pull out their hair and their eyebrows.

Many of them have a pronounced aversion to their nearest friends, which manifests itself in suspicion, abuse, gross accusations, and even homicidal attacks.

A few have an insane fear of men. The majority of these patients are vain and hysterical, untruthful, mischievous, crafty, and given to pilferings and multitudinous kinds of misconduct. In some of these girls only one or more of the above-mentioned perversions exist, but in most of them nearly the entire list is observed during the course of the insanity.

Delusions. "Their name is legion." The acute mania cases have unsystematized, rapidly changing ones—"I'm a Russian princess—I'm a Jew—I'm your husband—I'm the Valkyrie, no, I'm the Vigilant," and a dozen other things one girl will say in one minute's talk.

But in other cases we find more or less fixed delusions. Below are some of the delusions noted in the cases which form the basis of this paper:

Believes she can't swallow food because her stomach is grown together.

Thinks we feed her poison.

Thinks we give her "love powders" to make her like the doctors.

Thinks we beat her, insult her, and make her swear.

Thinks she is possessed of the devil (and certainly acts so).

Thinks she is Jehovah, the Virgin, the Church, The Bride of Christ, the Saviour, or God's wife.

Thinks she is married and has had several children.

Thinks she has had a rooster for a child.

Thinks she is pregnant.

Thinks she has had a baby which was conceived by the Holy Ghost.

Thinks she is a crazy alligator.

Thinks she is a snake, and wriggles and hisses like one.

Thinks she is a dog, a cat, a chicken, or a horse.

Thinks she is a little colored girl.

Says she is a boy.

Says she is dead and must be buried.

Says she has committed the unpardonable sin.

Says God is dead.

Says she is Adam and Eve.

Says she is persecuted by her family.

Says her body is immortal.

Says her hands are being bitten by horses.

Says this is a brothel.

Says her ovaries have been removed.

Thinks she is violated in the night.

Thinks she is engaged, and waits daily by the window for her lover.

Keeps handkerchief rolled in palm of hand and says it is God.

Thinks snakes are crawling on her and are in bed with her.

Says there is a white elephant in her bed.

Says she is an electric bell.

Asks to have her uterus removed as she is married to the devil and doesn't wish to have devilish children.

Says she is a black snake with a false face.

Imagines she is covered with dust and dirt and can

never get clean, washes hands all day if allowed water in the room.

Premonitory symptoms of adolescent insanity.—Before the friends of these patients recognize them to be of unsound mind, hysterical manifestations, countless in number and variety characterize most of them. They are for the most part girls who have been given up to willfulness, caprice, passion and self-indulgence, the parents having yielded to their whims till the girls became veritable tyrants. A certain shrewdness characterizes these misguided girls; finding they can get their own way by so doing, they indulge, upon occasion, in fits of hysterics when their friends are inclined to oppose them. There is a changeability about them which makes them very uncertain elements in the family life; they are unstable as weather vanes. They will not brook any interference and are intolerant of restraint, giving way to tumultuous emotions when attempts are made to control their conduct, their aversion to such control being in direct proportion to the necessity for it. "Was your daughter willful and passionate as a child, or are these exhibitions the result of her disease?" And for some unaccountable reason the mother attempts to conceal or actually deludes herself concerning the truth, and tells us that the girl has always been sweet tempered and docile. Later we learn from some disinterested relative that the child has often been seen to become furious at any opposition, stamping her feet and even spitting in her mother's face. Thus the daughter who is said to have been a model of propriety is found to have been, like Carlyle, "gey ill to live with."

These girls cannot be made to reason. "I can't help it," or "because I want to" are their only attempts to justify their wayward conduct. They are moody, self-absorbed, and consequently depressed. Or, they evince an exaggerated self-assertion and undue elation. Their exaggerated impressionability renders them very sensitive to supposed sleights and keeps them "in hot water" most of the time. They are imbued with the idea that they are "not appreciated."

The protean forms of hysteria which develop during the incipency of the disease make us ready to expect the unexpected from them always. They may be morbidly conscientious and aim at extreme circumspection of speech and conduct, or they may become cat-like and crafty, and disposed to take a ghoulish delight in all

sorts of mischief and wrong—their conduct being merely an exaggeration of their individual impulses and tendencies. Many of them show a propensity for prevaricating for no other motive than an inherent desire to deceive. They may be “light fingered,” often being detected in petty thefts. They are prone to run away from home, using the fire-escape and other extraordinary means of escape, if the ordinary ones fail. Or they may show extravagance, ordering large bills of goods sent C. O. D. and in other ways attempting to carry things with a high hand. Some of them become very slangy and “tomboyish,” aping the tone, gait, and conduct of a boy. Some of them belong to the order of whistling girls, and shout and whistle in a very boisterous manner.

Further manifestations. After the actual outbreak of insanity, the condition is only an exaggeration and prolongation of these wayward tendencies, they become imperious, arrogant, and dramatic, or taciturn, moody and despondent. The destructive tendency becomes very strong, they especially delight in breaking glass, smashing things generally, in tearing clothing, and in destroying everything of value. Many of them show wonderful facility in the making of rhymes and puns, and they recite poetry, sing songs, or sing their conversation for hours at a time. It is during the acute attacks that the various perversions appear. The suicidal cases make repeated attempts to carry out their purpose, the homicidal are persistent in their efforts and show a malicious delight whenever they accomplish even a part of their intent.

The depressed and morbidly conscientious patients are prone to self-accusations, sometimes reverting to childhood and girlhood and recalling petty wrong-doings, all of which increase their self-denunciatory states. Some even accuse themselves of horrible perversions in childhood, which we can hardly credit.

Some maintain a quasi cataleptic state and remain that way for weeks and even months, evidently comprehending all that is going on about them—a blush and a quivering of the eyelids betraying their consciousness of what is said to them. Some persist in talking baby talk for days or weeks at a time.

Epileptics are especially homicidal and dangerous. After attacks they are quite prone to talk familiarly with God, addressing Him as though He and they were

boon companions. One young girl, on admission, being asked by the nurse if she were not going to say her prayers, quickly replied, "Good-night, God," and crept into bed with a consciousness of duty done. This is, however, far preferable to the midnight vigils of those who wrestle with the Lord after the Jacobian fashion.

Duration and Recoveries. The duration of insanity in these cases cannot be accurately determined, many of them being insane for varying lengths of time previous to admission, and no accurate means of determining the time being at our disposal. Of the acute cases that have recovered, most recoveries were made in from six to twelve months. Some of the chronic cases though young on admission, have been here six, eight, ten years and even longer, and for that reason patients now over thirty years have been included in this study. The acute cases which fail to recover, gradually slide into chronic mania and chronic melancholia, and from these conditions to the still lower step in the scale of degeneracy—terminal dementia.

Of these 121 young women, 68 are still here. Concerning the recovery of these 68, 23 give us reason to hope; in 25 the prognosis is doubtful, and 20 give little or no promise of recovery; 53 have been discharged. Of these 53, 40 were recovered, 7 died, 5 were transferred unimproved, and 1 was discharged as improved, but not cured.

Treatment.—The treatment adopted in these cases is not easily defined, being based on the needs of the individual cases so far as possible.

The removal from home and from the environments which are aggravating the condition, is the first step toward helping the patient to recover her mental health.

Physical disorders are sought after and remedied by hygienic and therapeutic measures.

Rest for the overworked and worried patients—enforced rest in bed, is one of the means employed toward rebuilding the shattered physical structure. Abundance of plain, nourishing food, with a liberal allowance of raw eggs and hot milk are important allies in our efforts at reconstruction.

When we have attended to the physical ailments of our patient, there still remain the "thick coming fancies which keep her from her rest," and we have before us the difficult task of ministering to a mind diseased. We are often forced to say with conviction: "Therein the

patient must minister to herself." We can only stand by observantly and wait, with here and there a suggestion or a word of encouragement, while the work of reconstruction is going on. We can do much, however, in the way of directing the work, exercise, amusement and reading of many of the patients. A judicious selection of the fellow patients with whom they associate is also important, as patients are helpful or harmful to each other to a great degree.

The regular life, the salutary discipline of conforming to the rules of the Institution, the example of so many others conforming to the same rules, the encouragement of self-control, the discouragement of self-regard, the observant neglect of those inclined to be hysterical or hypochondrical—these are some of the means employed in the restoration of the mental health of our patients.

Prophylaxis—Our study of these cases, from the records and from what the friends have told us, and more especially from the girls themselves during the development of the disease, and while convalescence has been going on, has led us to conclude that the alleged causes are by no means invariably the real ones in the development of insanity.

An investigation of the formative influences of childhood and girlhood has shown us that many contributing causes have been not a little responsible for the mental disorders of these young people.

Little more than an enumeration of these causes will be given here, but the mere enumeration suggests the prophylactic measures necessary to be considered by those who have the training of neurotic girls and young women.

The evolution of puberty and the period of adolescence are in themselves trying times for those having the most fortunate endowments and environments. It is, therefore, not at all strange that these periods should be marked by the development of mental disease in neuropathic individuals.

It is during adolescence that the inherited tendencies crop out, giving the girl a multiple personality to deal with, with all its conflicting impulses, instead of her own individual personality. This in itself is sufficient reason why girls at this period should be under the most intelligent, sympathetic and judicious supervision as regards their physical, intellectual and moral environments.

That the neurotic girl should shun marriage would seem to need no proof other than that obtained by a careful observation of her tendencies and her conduct, but all physicians do not agree in this particular. Many of them cite the excess of the reproductive instinct as a reason why these young people should marry early in life. That this excess exists there is no doubt, neither is there any doubt in my mind that marriage should be interdicted, at least till the period of adolescence is safely passed, thus prohibiting the girl from adding the burdens of marriage and motherhood to those of adolescence, when nature is already having all she can well do to preserve the mental equilibrium.

At the start the greater number of these patients were handicapped by an insane inheritance, and as though that were not enough, many of them were subjected to daily association with their insane or neurotic relatives, thus living in a mental atmosphere eminently fitted to favor the growth and development of insanity.

Some of these young people had slight bodily deformities, such as lisping, stammering, asymetry of features, deafness, &c. These in themselves, to the casual observer, might not seem of enough importance to mention, but when we reflect that scientists consider them the outward accompaniments of inherent abnormal mentality, they have a new significance for us. Further than that, they are constant sources of annoyance and unhappiness to those thus afflicted; their infirmities make them envy their more fortunate playmates; envy gives rise to suspicion, and an unhealthy moral nature is the result. It is not only unwise, but cruel, for parents, brothers and sisters to keep these infirmities before the minds of the unfortunate possessors of them, even by good natured teasing, or by repeated allusions to them. If they are defects which can be remedied, do so by all means; if not, train the girls to ignore them, or to rise above them.

Some of these patients have been girls who all their lives believed themselves to have been foundlings, and, brooding over this feeling, they have interpreted chance remarks or acts of their parents as confirmation of this belief. Such a girl feels herself out of harmony with her environments. She is actuated by contending impulses, which lead her to eccentricities of speech and action which are clearly disapproved by wiser members of the family, and their very disapproval gives her the

feeling of alienation that easily develops into a fixed delusion of her being a foundling. From this feeling to extreme aversion for her nearest friend is but a step.

An inharmonious home life has been a very common cause given by the girls themselves on recovery as the reason for their mental outbreak. Bickerings and wranglings between the parents created daily sources of irritation which, to sensitive, growing girls, had a peculiarly deleterious influence.

The natural romanticism of girls at this period leads them to the perusal of the most romantic fiction they can find. Their dawning hopes and high ideals make them eagerly seek for satisfaction in books, being denied it in the prose of every day life. It would be cruel to deprive them of this mental pabulum they crave, but parents or teachers should stand ready to keep them supplied with wholesome romances, thus creating a taste for good novels, and supplying that taste, so as to leave no room for trashy fiction.

The tendency of the romantic girl to find a hero in every one she meets should not be lost sight of in her relations with her pastor, her physician, or her teacher. These men come into a girl's life very closely. If they are the right-minded, high souled men they should be, and usually are, they can keep this natural romanticism on a healthful basis, and thus be instrumental in directing the girl's career to no small degree: but if they are vain or unprincipled, or inclined to experiment on her susceptibilities; the amount of harm they can effect is unmeasurable.

Idleness and aimlessness are, we believe, responsible for much of the dissatisfaction and mental unrest which are the forerunners of mental disease. Girls have dawning hopes, vague aspirations and thrills of ambition as well as their brothers, yet too often they are forced to stifle these aspirations and remain at home, leading a mere humdrum life, or, on the other hand, a butterfly existence, and in either case they drift into discontent and despondency, simply for the lack of some occupation, pursuit, or study which would furnish them a zest to existence, and would give them a wholesome feeling that they have their place of usefulness and responsibility in this busy world.

Overwork has, however, been found to have been the exciting cause in many of these cases of insanity. Too serious views of life, neglect to relax and yield to the

sportive tendencies of youth are easily found to be quite as productive of evil as no work and no aim in life. Hard work and no play is as bad for "Jill" as it is for "Jack." Therefore, a life of temperance (using the word in its broadest significance), is one of the best prophylactics for these neuropathic patients.

Religious excitement is one of the etiological factors which we cannot overlook in the study of these cases. We believe that some of our religious customs are largely responsible for the outbreak of insanity in girls of neurotic temperament. Reference is made more particularly to the religious revival, with its series of meetings, possessing such an absorbing interest for girls of the sensitive, emotional type.

The young should be taught the principles of right thinking and right living, but customs which appeal to their emotions alone not only fail to accomplish the good that is desired, but they actually serve to arouse an unhealthy excitability which furnishes the soil for perversions, and the manifestation of these perversions, which are wholly inconsistent with their religious professions. These inconsistencies make us wish to urge parents and pastors to keep the religious training of the young on a rational rather than an emotional basis.

In conclusion, we would say that the above list of contributing causes could, we believe, be largely supplemented by still further investigations of the environments of these neuropathic girls, and that it is only by such investigations, and an intelligent supervision and direction concerning the tendencies and environments, that other neurotic young women can be prevented from having attacks of adolescent insanity.

THE INCUBUS OF TWENTIETH CENTURY CIVILIZATION.¹

By A. B. RICHARDSON, M. D.

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M. R., male, aged about 26, of uncertain parentage, financially poor, the subject of much privation, was cousin to a young man somewhat older, who had been indicted and convicted of the crime of murder of a most brutal character, and after a trial that had naturally greatly excited the whole community. M. R. was always considered a mild, inoffensive individual, intellectually not bright, inclined to wander about the neighborhood, disinclined to regular employment, restless and trifling. A part of the time he made his home with the mother of the cousin before mentioned, who was a worthy woman of good intelligence. He had some slight trouble with her over an account, but not such as to receive any serious consideration from her or others. One night he called at her home, called her to the door and without a word of explanation shot her through the bowels from which shot she died. He ran away or went away, but was found and arrested without any serious difficulty. When asked the motive of his deed he claimed the woman was abusing him, an accusation that the testimony showed to be wholly without foundation. He was convicted of murder in the second degree, sent to the Ohio Penitentiary and died there a year or so later, a mental and physical wreck.

Levi M. M., aged 32, native of Ohio, son of a farmer in comfortable circumstances, was one of a family of fourteen children who had been born within about fifteen years. His mother had an attack of melancholia lasting the most of one year, after the birth of the third or fourth child. One of her sisters had an attack of melancholia at sixteen or seventeen years of age lasting for several months, each ending finally in recovery.

¹ Presidential Address read before Columbus Academy of Medicine, January 6, 1896.

L. M. M. was a timid retiring child intellectually bright in most ways, but peculiar. He worked on the farm with his father throughout childhood and received a common school education. At the age of sixteen he began to conceive the idea that the people of the neighborhood were making sport of him, laughing at him as he passed and making slighting remarks about him.

This continued until he was nineteen years of age. He would avoid the company of others and would go off to the woods to be alone when company came to the house. At the age of nineteen the feeling made him so desperate that he left home in the night season without notifying any one of his intention. He went to a town about 100 miles distant, changed his name by dropping the last name, calling himself Levi J. M. and later becoming more suspicious, changing it to Leonard J. M., he having committed no crime and being accused of nothing before he had left town. He denied that he had either father or mother, and maintained that he had no brothers and sisters. He worked six or seven weeks in the town in a quiet way at any labor he could get and then went about eight miles into the country and got work on a farm. He remained quietly in that neighborhood for perhaps ten years, to all outward appearance a peaceable, law-abiding man. About the end of that time he married a woman somewhat older than himself. About three years ago and about ten years after he had left home he had a dispute with a man named S. over an unsettled account resulting from a partnership in sawing wood. The account was finally left with a justice of the peace when S. settled it, paying him \$1.95 where he claimed \$6.00.

They had no further dealings with one another, and did not speak when they met. Two years elapsed. Neither had heard that the other had said or done anything harmful of the other.

From the time of the difficulty a change became noticeable in M. He began again to think people were laughing and making sport of him. He became much exercised on religious subjects, thought his soul was lost, would pray loud and long in barns, outhouses and elsewhere, and said there was no hope for him. He joined the church during this time, and to some of the members disclosed his concealed identity and gave a history of his past life. Finally about two years after his first trouble with S., having had no words or com-

munication with him in the meantime, he one day got a rope, made a slip noose and went to a field in which S. was working, armed also with a gun. He secreted himself in such a manner as to escape detection, got around in the rear of S. and stealthily crept up on him until he got close enough to throw the rope over his head and draw it about his arms. S. struggled, got his arms loose, released himself, was caught and thrown down at least twice, M. each time getting astride of him but doing him no harm otherwise. S. finally succeeded in getting away. M. ran after him for a considerable distance but could not overtake him. S. got his father and returning approached M. and asked him what he meant by the assault. M. said, "You know what you have been doing for the last two years." As they approached, M. drew his gun and said he would shoot if they came nearer, when they desisted and left.

Then M. went to a neighbor, his best friend, and in conversation said his soul was lost, that his friends were all against him, the world was all against him, God was against him, and when argued with could not be convinced to the contrary. That night as he sat in his room with his gun on his lap and a revolver and knife in a belt about his waist, a knock was heard at the door and he opened it. A man said, "Do you know me?" He replied, "No, you can't come in here," and shut the door. His wife came down stairs on hearing the noise, opened the door, and when the man asked to come in, she turned to M. and he said, "Certainly let him come in I will not hurt him." Two men then came in dressed in officer's clothing. M. seemed suspicious of them but they assured him they did not come to arrest him, but to talk with him about the trouble. After talking awhile, they suddenly and unexpectedly to M., made a rush for him and caught him and the gun that he held. In the scuffle this was discharged, when another man ran in and caught hold of him. M. resisted desperately, and getting one hand loose he pulled his revolver and shot one of his assailants, inflicting a fatal wound. He was then pushed out of doors, thrown down and handcuffed. He stated to friends that his purpose in attacking S. in the field was for the purpose of castrating him because they were all threatening all the time to do that to him, and he wanted to do to S. what they were trying to do to him, and teach them to mind their own business. He said in conversation that he had never seen an easy day

since he was sixteen years of age, that he had a constant fear but that people did not laugh at him or make sport of him after he left home until the trouble with S. He said that this persecution had changed him so that he was no longer a natural man, his soul was lost because of this and everybody was against him. His memory of everything connected with his trouble was good, and he told a reliable and truthful story of it.

K. D., a German, four years in this country, aged thirty-two, small, slender and anæmic, with wedge-shaped face, head flattened antero-posteriorly and bulging laterally, forehead asymmetrical, was one of a family of twelve or fourteen children, born in about the same number of years. His father was subject to periodical attacks of depression, when he frequently attempted suicide, a rope and a revolver being taken from him on a number of occasions. He finally did kill himself by shooting. The father at those times was extremely irritable and exacting, causing the mother to become so desperate as to threaten suicide herself. Two other relatives of the father committed suicide.

K. was a peculiar child, and from the age of fourteen to sixteen years, had every two or three to six or eight months spells of depression or irritation, when he would act differently from his usual conduct. He would sometimes sit and stare at space and pay no attention to remarks addressed to him. He was also easily irritated, cross and fault finding, although at other times pleasant and agreeable. These attacks lasted usually a day or two. In 1890, after the death of his mother, while home on a ten days' furlough at Christmas, he shot himself, perhaps four times, in the breast on his mother's grave, and was treated in a hospital several months afterwards. When he recovered, being released from the army therefore, he came to this country and to Columbus. A brother soon followed him, he states, to look after him. Fourteen months after he came here he married a German girl, and they have a child a couple of years of age. His wife says he is a kind and agreeable husband and father, but has the same kind of spells we have already described. They come on at variable periods, last a day or two, and seem characterized by either depression or excitability and irritability, and according to his statement, he has at those times often great difficulty to resist impulses toward violence to himself or others. It is hard work, so he says, for him to keep restraint over himself at

those times. He takes beer more or less daily, but not to excess, and at these times he says he often drinks more. He is a tailor by trade, and works steadily at his trade whenever he has work. He was employed in a shop with several others, among them an older man named B., who was rather fault-finding and irritable, and not popular with the other workmen. Last February or March he and K. had a dispute as to whether Berlin or Leipsic was the cleaner city in Germany. Later they had some words about the daughter of B. sweeping the dirt of the floor under his bench where he stood at his work. They had had no further trouble than this. One morning in May, K. came to the shop as usual, working from 7 to 10 A. M., quitting then on account of lack of work; he was in and out of the shop during the forenoon, possibly having a few words with B. on that morning about the sweeping. He went home at noon, and his wife states that he was more excitable and nervous than usual. He had a revolver at home, which he is supposed to have put in his pocket at noon. After dinner he returned to the shop, was in and out, went out on two different occasions with other men, visiting a saloon and taking each time a couple of glasses of beer, and during the day he is known to have taken as many as six glasses of beer. He finally returned to the shop about five o'clock. While with the men in the saloon, and in conversation with persons in the shop during the day, he said he had to kill a man that day, and again that he would not need money, as he would be in heaven before the next day, and speaking of B. to the man with whom he drank the beer, he said if the girl swept the dirt under his bench again he would "strike the dog dead." From five to six o'clock he stayed in the shop, talking rather excitedly and in a lively manner with the others about him, but showing nothing peculiar otherwise, and displaying no particular hostility and directing no particular attention, so far as any noticed, toward B. Suddenly, as the clock struck six, which was the hour for quitting work, he drew his revolver, and without a word of warning, fired four shots at B., two of which took effect, killing him instantly. K. put his revolver in his pocket, said nothing, walked out of the door, down a few steps, out on the pavement, went a few yards, and then started to run, being overtaken before he had gone many rods. He gave up his revolver at once, was much excited in the prison, took the revolver when handed to

him and snapped it against his breast, but it was empty. He continued excited the next day in jail, and did not seem to know his family when they called. Later he had a confused recollection of the events of the day, but could give no explanation for his act. To some he said B. was a mean man; to others he said he did not remember to have thought of killing him before he fired the shots. He said he was sorry for what he had done, but it was too late.

F. R. C., male, aged thirty, married, native American, is the son of a successful business man. He is bright, intelligent, quick to learn, plausible and capable, but morally depraved. As early as fifteen or sixteen years of age he was discovered in a *liaison* with a woman, and he has gone to the most extreme degree in his licentiousness ever since. He has for several years lost the power of natural sexual indulgence. He has drank to excess since boyhood, and the quantity of strong drinks that he has taken almost staggers belief. His statements are wholly unreliable. He is untruthful, depraved and wholly unable to resist his impulses to drink and to indulge his perverted sexual appetite. Even the most unpleasant experiences have not the least deterrent influence. He says his conduct is his own business and it is no concern of any one else. He is lost to the sense of shame, and publicity and public censure have no terrors for him.

Gentlemen, these imperfect outlines of four cases that have come under my observation, are presented to serve as illustrations of the role of the degenerate in the onward march of modern civilization. With every decade the struggle for existence becomes more fierce, and the stragglers along the line of march more numerous. As civilization advances and society becomes more complex, the strain upon the nervous system, the controller and regulator of the physical organism, becomes greater, and although the friction in the contact with environment would seem to be lessened by the devices of genius, the struggle for existence becomes constantly more desperate. The result is that we see among us a large number of individuals who exhibit in physical and mental characteristics the stigmata of degeneracy. They are defectives. There is a something in some direction lacking. In one it is a visible intellectual deficiency. In others it is an inherited instability, a vulnerability of the nervous system to the invidious influence of environment. This vulnerability exists in varying degree.

Where it is slight a considerable exciting cause is necessary to develop the phenomena of acute mental disorder. Where it is marked this will develop without any visible exciting cause being present, simply being the expression of the innate tendencies of the defective organism toward destruction and dissolution. My purpose in bringing the subject to your attention this evening, is to impress the fact that in this class originate the large majority of the quasi-criminal and the quasi-insane offenses against the peace and safety of society. Criminal acts in such persons are often the outgrowth of very insufficient motives. Impulses toward homicidal and suicidal acts are often strong, and paroxysmally recur with almost, if not quite, irresistible power. There is an ebb and flow in all nervous action that gives these phenomena an episodic character. Environment has much to do with the evolution of the innate tendencies. If this is fortuitous they may lie dormant for years. Even after acute symptoms develop, if in the earlier periods of life, as in the second case described, a decided subsidence may occur, and years may elapse before they return. In other cases the degenerate tendency is shown less in impulse toward homicidal or suicidal acts, and more in uncontrollable impulses toward alcoholic dissipation and sexual excesses and perversion. Such is the last case described.

In none of the cases narrated do I care to attempt any measure of the responsibility. My purpose is first to demonstrate that there is a class of defectives among us to whom the term degenerate can be fitly applied, and that this degeneracy is not always to be measured by the degree of intellectual development or proficiency.

Secondly, my purpose is to point out some of the chief characteristics of this state that it may be more readily recognized by the profession. Thirdly, I wish to impress upon the medical profession the great importance of making a careful study of every defective. To us as medical men will the public look more than to any other class of men for advice and caution in dealing with this important class. I have no hesitation in saying that there is no other danger to society so imminent as the presence in its midst of these defectives. To revert to the second of these, there is nearly always in the degenerate a visibly bad inheritance.

Insanity, epilepsy, eccentricity, emotional disturbance, rapid child bearing, or sexual perversion abound

in the ancestry. The individual often bears in his person the physical stigmata of degeneracy. There may be asymmetry in cranial development, wide variation from the average in cranial diameters, a high arched palate or irregular and defective teeth, a wedged shaped face or heavy jaws. Intellectually there is in some a visible defect. They are dull, do not learn readily, and are deficient in powers of observation and judgment. Others, however, are intellectually bright, and it is these that are the most dangerous and the most puzzling to manage. They often learn with unusual readiness. They are especially ready in acquiring any mechanical skill. They often turn their hand to a variety of employments with remarkable skill and versatility. There is an elasticity in their movements and a precision in the use of their muscles that is above the average. There is usually, however, a decided prominence in the development of the emotions. Their emotional states are readily changed from one extreme to the other. They are impulsive, excitable, over enthusiastic, easily depressed, subject to fits of the blues, and fluctuate rapidly from one extreme to the other. They are impulsive, either away on the mountain top or down deep in the valley. They are, too, often suspicious of those about them, and vividly imaginative. Above everything else, and this is the most dangerous characteristic, they are impulsive. They do not act from deliberate reason, but are controlled by impulses that are scarcely conscious to themselves. In their more active pathological states they are possessed with uncontrollable impulses to do strange or unlawful acts. Impulses toward homicide or suicide are very frequent. So also are impulses to do many other unusual but less dangerous acts. Morbid fears are frequent. Some have a timidity in the presence of others and an aversion to society. All these mental stigmata are much more conspicuous after puberty. Before that period they are much less prominent, and seldom exist in any marked degree. Children of this type are often peculiar, timid or shy, but the activity in their emotional states is much greater at and after the pubescent change. Active pathological change is very liable to develop at the epochal periods in such persons; during the pubescent and adolescent period and at the climacteric. In examining into the history of any such individual there are two things to be kept in mind. The one is the degenerate background, the

other is the insanity. There is the structural peculiarity and defect, and the active disease that may be super-added to this. The one is ever present, but often fitful and periodical in its manifestations. The other is liable to develop for a time, subside and return, with no regularity or uniformity in the pathological manifestations.

The most prominent characteristic of the mental disorder of the degenerate is that it follows no well defined course. The symptoms are intermingled, and it is impossible oftentimes to classify them or arrange them in the usual pathological order or sequence. There is one day exaltation and perhaps the next depression. Sometimes one precedes and sometimes the other. Persecutory ideas are quite common. So also are delusions relating to the sexual organs or functions and a perverted or exaggerated sexual appetite. The natural and instinctive love of life in such persons is not so strongly rooted as in the normal state.

The thought of suicide is not repulsive to them, and they do not have the healthy view of the sacredness of human life. Frequently these persons are the victims of degrading vices and habits. They indulge to excess in alcohol or narcotics and give unrestricted rein to their sexual passions. Their power of inhibition is weak. They have but little self-restraint, and are the creatures of their environment. They are drifted about by every current, and wafted hither and thither by every wind that blows. They are often prolific in procreative power, and if environment is favorable may pass through life without any overt act of lawlessness. The children of such parentage, however, are prone to forms of nervous disease and show defective development often in still greater degree than the parent. Above all else the fact to be kept most prominent is that from this class is developed a large proportion of the habitual criminals. The history of many of these clearly demonstrates that they are degenerates. Not every criminal nor every habitual criminal is defective. Many are the simple product of education and environment, developed step by step as these surroundings direct and shape the characteristics of the individual. Many others, on the other hand, are criminals in spite of education and in spite of environment. With these influencing them in other directions, they develop a natural tendency toward criminal acts, and this manifests itself without the presence of the usual motives to crime or without the presence of

sufficient motive. From a criminal standpoint their criminal acts are unnatural, unusual and inexplicable by any interpretation of criminal conduct based upon the usual incentive toward it.

Now as to the remedy, or in medical phraseology, what is the treatment. In this connection it is well to remember that there is but one justification for one man setting himself up to pass judgment upon the conduct of another, and that is the protection of society. We should discard the doctrine of the savage, which is that of revenge, an eye for an eye, a tooth for a tooth. It is strange how this instinct, for such it must be called, still dominates popular opinion. So far from there being a predilection on the part of public opinion to excuse criminal acts on the ground of structural peculiarity or defect, or the existence of disease, there is a positive prejudice against such a defense. An attorney who intelligently estimates the chances of his client dreads most the resort to such a defense, because there is this popular prejudice against it. To us as medical men, however, the whole subject should be viewed dispassionately and in the light of modern science and research. As already stated, the primary object is the protection of society. This class of individual members, whenever they manifest irresistible tendencies toward lawless acts, I mean irresistible in the sense that acts are inevitable under certain unavoidable conditions and environment, should be separated from society, and whenever this lawless tendency is shown to be permanent and beyond control, this separation should be for the term of their natural life. This should not be done for punishment nor as a corrective, because neither is justified. In truth it is seldom that punishment as such acts as a deterrent upon this class. On the contrary, they are great imitators, and are prone to acts that make them prominent in the public eye. There should be a place intermediate between the penitentiary and the hospital to which they should be sent. It should afford absolute protection to society by a careful and complete espionage, and should afford an opportunity for the application of intelligent hospital treatment in whatever manner this may be deemed of value. As far as possible the individual should pay his way. The institution should be made as nearly self-supporting as possible, and as little of a burden upon the State as the circumstances will permit. The State should take no chances

with such individuals, as far as possible their criminal acts should be anticipated instead of permitting them to recur time after time as is now often the case. We cannot expect perfection in the regulation of society by law, but surely something should be done to bring about an improvement. The first of the cases mentioned was by a jury of his peers convicted of murder in the second degree and died a demented imbecile, I use this term advisedly, within two years. The second is convicted in the same manner of murder in the first degree, and if the verdict of twelve "true and impartial men" is to stand he will hang, although clearly the victim of persecutory delusions and imaginary fears of undoubted pathological character and origin. The third is convicted, doubtless as far as society is concerned, fortunately, of murder in the second degree. The fourth case, when placed under surveillance and hospital protection, is released through the process of law that should protect him and supplement his own weakness with its strength, and is bidden by it to exercise his own sweet will in going to destruction in whatever manner his fancy may suggest, and continue himself a menace to the safety of society, as his history thus far clearly demonstrates to be the inevitable result of his law-given liberty.

TRAUMATISM AND HÆMATOMYELIA AS CAUSES OF SYRINGOMYELIA.¹

By DR. WM. G. SPILLER,

From the Wister Institute.

THE following case of fracture of the fourth cervical vertebra occurred in the service of Dr. Willard at the Presbyterian Hospital. We desire to thank him for permission to use it in this paper. The article will appear more in detail in the *International Medical Magazine* for April, but the present paper has been rewritten and much changed with the exception of the short histological report.

When examined microscopically the fifth cervical segment showed considerable alteration of tissue, above the lower part of the fourth and below the upper part of the sixth segment very little that was pathological could be noted. In the fifth cervical segment the fibres of the median portion of each lateral column were pressed from a longitudinal into a horizontal course; in the upper part of the segment each anterior horn was encroached upon at its posterior border by these fibres; slightly lower the interior of the right anterior horn was filled by a mass of fibres from the antero-lateral column, and was surrounded at all points by a hemorrhagic ring of gray matter; still lower in the segment the anterior border of each anterior horn was broken through by penetrating fibres. The force seemed to have been exerted at the centre of the cord and from the front, probably from pressure of the fifth cervical vertebra, and it appeared as though a wedge of fibres had been driven into each anterior horn from the white matter. The hemorrhage in the white matter was not great at any point; throughout the destroyed area there was extensive hemorrhage in both anterior and posterior horns, leaving the commissures free, and this was greatest at the upper part of the sixth segment, where the fibres of the white matter appeared normal. This partiality of the hemorrhage for the gray matter is very

¹ Read at the meeting of the Philadelphia Neurological Society, March 23, 1896.

striking. Many swollen axis cylinders were noticed, especially in the direct cerebellar tracts at the lower portion of the lesion; a few could also be seen in the anterior part of the posterior columns; otherwise these columns were in a normal condition. It would have been impossible to imagine from the external appearance of the cord that such serious changes had taken place at the centre.

The points of special interest in this case are :

1. The freedom of the posterior columns from injury with the exception of a few swollen axis-cylinders, which might easily have been restored in course of time to their former condition, or even if degenerated would not have caused permanent and serious symptoms.

2. The comparative freedom of the white matter from hemorrhage and the great involvement of the gray matter.

It is believed by certain writers (Gowers, Charcot, etc.), that fibres of muscular and tactile sense are located in the posterior columns. In our case as these columns are preserved if such a theory is true these fibres would have shown no alteration of function after recovery from the primary shock to the cord provided death had not occurred.

The evidence in favor of the location of muscular sense in the posterior columns is greater than that of tactile sense. Lesion of one half of the cord is accompanied by loss of motion and of muscular sense on the same side, and of the other forms of sensation on the opposite side of the body. The only sensory fibres with which we are acquainted which decussate high in the cord, and thus explain the loss of muscular sense on the side of the lesion, are contained in the posterior columns, and the decussation is in the medulla oblongata.

Cavity formation of the gray matter, in which tactile sense is not usually involved, indicates that these tactile fibres do not pass through the gray matter of the cord, unless they are to be found in the fine fibres of Lissauer's zone, as held by Menzel, who supports his argument by the statement that in Friedreich's disease sensation is so little affected, although the posterior columns are greatly degenerated and Lissauer's zone is not involved.

v. Bechterew² has recently expressed the opinion that

² *Deutsche Zeitsch. f. Nerv.*, Vol. viii., No. 1 and 2.

fibres of tactile sense do not all cross in the cord, and that those from the legs decussate more freely than those from the arms.

In regard to trophic fibres. Fraenkel³ has just published in Vienna the results of important investigations in which he has found hypertrophy of the walls of the small peripheral arteries in thirty-six cases of chronic nervous diseases, in which trophic disturbances are common, the same condition existed likewise in the arteries from the walls of tabetic ulcers. His conclusions are that the so-called trophic changes are vasomotor and angio-sclerotic in nature, and that the thickening of the vascular walls must be considered as neurotic angio-sclerosis.

v. Lenhossék⁴ has described cells in the chick, apparently motor in function from their appearance, which are located in the anterior horns and send their axis-cylinders through the posterior horns, and posterior roots into the spinal ganglia. Kölliker believes these axis-cylinders pass into the sympathetic ganglia, and that they may be vasomotor and visceral fibres. Irritation of the posterior roots in young dogs has caused dilatation of the vessels in the area from which these root fibres come. If we may connect the discovery of V. Lenhossek with the results of the investigations of Fraenkel, and may consider that trophic changes are in large part of vascular origin; and if vasomotor fibres pass from the anterior horns through the posterior roots we can understand the frequency of trophic disturbances in syringomyelia,—a disease essentially of the gray matter, as well as in tabes, a disease essentially of the posterior roots.

Future investigations must decide the question. At present vasomotor symptoms are not considered common in syringomyelia according to Prus⁵.

Many cases of syringomyelia, in which the lesion was limited to the gray matter, have shown that thermal and trophic fibres, whether the latter be considered merely as vasomotor fibres or not, and those for the sense of pain must have part of their course in the central gray matter. As this was greatly injured in the present case the function of these fibres would have

³ *Wiener Klin. Wochenschrift*, 1896, Nos. 9 and 10.

⁴ *Der feinere Bau des Nervensystems*, page 276.

⁵ *Archiv. f. Psych.*, 1895, page 774.

been permanently altered, at least for the upper extremities.

We, therefore, have in this cord the changes necessary for the symptom-complex of syringomyelia, provided we can accept the theory mentioned for the function of the posterior columns. Had this man lived, which was not impossible when we recall the case of traumatism of the cervical cord described by Dr. Lloyd and pictured in Dr. Dercum's book, we may imagine what his symptoms would have been. He must have been paralyzed in all four extremities, must have had atrophy of the upper arm type from destruction of the gray matter of the fifth and upper part of the sixth segment, and for the same reason have had the dissociation of sensory symptoms seen in syringomyelia, at least in the upper extremities. The reflexes would have been increased in the lower extremities and probably have been absent in the upper; although they might have been increased at the wrist. The biceps reflex would certainly have been absent, as the biceps belongs to the upper group of arm muscles which have their centres in the fifth and sixth segments. The motor paralysis might have been incomplete.

It is possible, of course, that a transverse myelitis might have developed later, but had this failed the nature of the primary lesion would explain the syringomyelic symptom-complex seen after cases of fracture.

The absorption of the hemorrhage in the gray matter would probably have caused a cavity as in the case recorded by Stadelmann.

We do not mean to suggest that all cases of syringomyelia following fracture are produced in this way. A specimen we present, given to us by Dr. Schlesinger, of Vienna, of cavity-formation in man following a transverse lesion would contradict this. Dexler has found after compression myelitis in dogs that the central canal is almost invariably enlarged above the seat of lesion, and Eichhorst and Naunyn have produced cavities in the cords of young animals which extended into the cervical region from destruction of the lower part of the cord. The distinction between hydromyelia and syringomyelia often cannot be made.

We have given the views of many writers in regard to the subject of this paper in the *International Medical Magazine* and will not repeat them.

The combination of trauma with syringomyelia has

been noticed too often to be considered merely an associated condition, and while in some cases the former may change a predisposition into an active process, in other cases it seems that we must consider it a distinct causal factor. As Schultze has pointed out in a recent article the amount of gliosis in some cases is too limited to permit a supposition that the cavity is due to its disintegration.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, April 7, 1896.

C. A. HERTER, M.D., Vice President, in the chair.

A CASE OF CRETINISM.

Dr. FREDERICK PETERSON presented a case of sporadic cretinism with the following history: M. P—, aged eighteen months, born in New York of Hungarian Hebrew parents, was brought to the Vanderbilt Clinic June 25, 1895. He was the fifth of five children, the other four being normal in all respects. His hair was very thin and reddish-brown in color. He had no teeth. His lips were thick, and eyelids and face heavy and puffed, the mouth wide open, the tongue thick. There were supra-clavicular swellings. The thyroid gland was small and hard. There was lordosis; the abdomen was prominent, and there was a slight umbilical hernia. The child was very small for its age; temperature, 97.2° F. It was absolutely unable to sit up, stand, walk or turn over. It paid attention to nothing. It could repeat the words "papa" and "mama" without understanding their application. The cretinous condition was perfectly distinct, though it had not advanced far. The child was photographed, and on June 28 was put upon one grain of thyroid extract daily, which it had taken ever since. Six weeks after treatment had been begun it had been again photographed. The change for the better was very marked. The child had grown thinner, the abdomen was normal, the umbilical hernia had disappeared, the hair was thick, two teeth had been cut, the child could sit up on the floor, it had begun to laugh and play with the other children, to understand everything said to it, and to take notice of everything going on. During the past winter the child had had the measles, but had continued to improve remarkably. It was now an intelligent and robust child for its age—twenty-seven months—and in respect to bodily growth, development of teeth and hair, use of language, play, etc., it must now be considered as in every respect a normal child, and it seemed proper to call the case cured. The treatment might require to be continued indefinitely.

ANOMALOUS CASE OF MULTIPLE NEURITIS.

Dr. W. M. LESZYNSKY presented a man fifty-six years of age, a bookkeeper by occupation. He was first seen on March 7, 1895. He had been well up to one year before, at which time he had begun to have a tingling and numbness in both hands. There was slight difficulty in picking up small objects. Since November, 1884, there had been frequent cramps in various parts of the body, and both feet had been almost continually numb. There were no bladder symptoms. He denied syphilitic infection, but admitted alcoholic excesses for a number of years past. There was no tremor of the upper extremities; the grasp was good; there was no ataxia, and no objective sensory disturbance. There was a slowness in all movements, but no trouble in walking. Muscular resistance was good; both knee-jerks were marked; the plantar reflexes were active. The urine contained a trace of albumen and some granular and hyaline casts. The provisional diagnosis was alcoholic peripheral neuritis. The treatment was abstinence, rest and general tonics. On February 18, 1896, he was admitted to the Post-Graduate Hospital, complaining of cramp-like pains and tingling in both legs and thighs, and he said that his feet felt as if there were rubber cushions under them. Examination showed wasting of the muscles of the lower extremities and general emaciation. The muscular resistance was good; there was slight ataxia on both sides; both knee-jerks were well marked; there was no clonus, and the electrical and ophthalmological examinations were negative. There was no apparent atrophy in the upper extremities. The urine had not changed materially in character. On April 2, it was noted that all the symptoms were more marked. He could not walk without a cane, and was unable to rise from the sitting posture without difficulty. There was no tenderness on pressure over the muscles or nerve trunks. The patellar reflexes were then absent. There was partial analgesia affecting the plantar surfaces of both feet, with only slight impairment of tactile sensibility. The temperature sense appeared to be impaired. There were no anæsthetic areas over any part of the body, and there were no special mental symptoms.

The case was presented as an anomalous one of multiple neuritis, with possibly an involvement of the cord, or posterior roots above the lumbar region.

Dr. J. ARTHUR BOOTH said that he had seen this man in May, 1894, at which time he had complained of pains in various portions of the body. There had been no evidence of involvement of the brain or spinal cord. The knee-jerks had been present, equal and low; there had been no bladder symptoms or ocular symptoms. The diagnosis at that time was multiple neuritis from alcoholic excess.

Dr. C. L. DANA said that he had had an opportunity of examining this man a week or two ago, and had looked upon the case then as one originally of multiple neuritis, but followed by degenerative changes secondary to a neuritis in the spinal cord. He had seen a number of cases which had followed a somewhat similar course, in which the symptoms resembled those of combined sclerosis. He believed that now there were degenerative changes in both the posterior and lateral columns of the cord.

Dr. B. SACHS said that without the history one would have very little hesitation in calling the case one of ataxic paraplegia; The only objection to calling it a neuritis was that there should be more marked atrophy and electrical changes.

Dr. M. ALLEN STARR said that he had seen the patient last December, and had made a diagnosis of ataxic paraplegia.

Dr. C. A. HERTER said he would have very little hesitation in looking upon the case as one of ataxic paraplegia, but in the light of the history it had been at first unquestionably one of alcoholic neuritis. He did not think it was very uncommon to meet with cases of alcoholic neuritis presenting a considerable degree of incoordination without very marked atrophy, and often with the knee jerks retained. It was possible that the presence of a nephritis in this case might have exercised a considerable influence in preventing a rapid recovery from the symptoms of the multiple neuritis.

Dr. LESEVNSKY, in closing the discussion, said that he had watched the case for over a year, and the course of the disease had not been that of an ataxic paraplegia. The knee-jerks had been well marked all the time. The paraplegic symptoms had developed very recently. Sensory symptoms were well known to exist in both multiple neuritis and in ataxic paraplegia.

GRAVES' DISEASE: OPERATION.

Dr. J. ARTHUR BOOTH presented a case of Grave's disease. It had been recently presented to the Society showing the prominent eyes, enlarged thyroid, rapid pulse and the nervous symptoms. Since then she had been operated upon, the right lobe of the thyroid being removed, and this operation had been followed by slowing of the heart action and the disappearance of the nervous symptoms. The peculiar œdema of the eyelids, however, still remained.

TUMOR OF THE CEREBELLUM.

Dr. FREDERICK PETERSON presented a tumor of the middle lobe of the cerebellum. The history of the case was as follows: A. S——, male, twelve years of age, was sent to him for examination in July, 1895. He had been perfectly well up to December, 1895, when he had an attack of the grip with meningeal symptoms. After recovery from this he suffered from periodical headaches, which grew worse as time went on. They occurred once a week, were frontal, and lasted a few hours. Sometimes he was delirious during these attacks. Six months previous to seeing him the boy was said to have had optic neuritis. Examination showed optic atrophy with feeble perception of light; knee-jerks absent; no nystagmus; no ocular palsies; no paralysis or alteration of sensibility; pulse and respiration normal. He had headaches with vomiting weekly. A very peculiar symptom was that of constant choreiform movements of the head, mouth and face muscles and all four extremities, precisely like an ordinary chorea. There was a staggering gait. The diagnosis of a glioma or glio-sarcoma of the middle lobe of the cerebellum was made, the symptoms being typical. The boy, while on a visit at Syracuse some time ago, fell down-stairs, fractured his skull and died. Dr. Van Layn, who made the autopsy, had kindly sent the brain to Dr. Peterson. On micro-

scopical examination by Dr. Bailey the tumor proved to be a glioma, and the situation of the tumor in the vermis was verified. The tumor was encapsulated, 5 ccm. broad, by 2.5 cc n. deep, and lay directly in the vermis, encroaching equally on each side into the lateral lobes of the cerebellum. The fourth ventricle was widely dilated, and the whole bulk of the pons seemed to have been subjected to considerable compression. Dr. Peterson said that he had seen many cases of tumor of the cerebellum, but had never before seen one with the choreiform movements which distinguished this case.

Dr. TERRIBERRY said that he had seen the case in June, 1895, at which time the choreiform movements had been well marked in the face, head and tongue, but not in the extremities. The right side had drooped considerably lower than the other in walking. The boy stated that in running he had been in the habit of falling much more frequently than other children. For this reason the speaker said he had been led to think that there was imperfect development in the cerebellar region. His diagnosis had also been a tumor of the cerebellum.

DISCUSSION ON THE NATURE AND TREATMENT OF EXOPHTHALMIC GOITRE, WITH SPECIAL REFERENCE TO THE THYROID THEORY, AND THE QUESTION OF THYROIDECTOMY.

Dr. M. ALLEN STARR opened the discussion. He urged the theory that this disease was due to hyperactivity of the thyroid gland—a theory first proposed in 1886, and which had gradually gained ground since then. The essential symptoms of exophthalmic goitre are swelling of the thyroid gland, protrusion of the eyeballs, rapid heart action, burning of the skin and perspiration, intense nervous excitement, irregular and rapid respiration, and sudden exhaustion. In myxœdema there was a primary atrophy of the thyroid gland, or a destruction of the gland by a cystic growth. There was also a marked tendency to the falling of the eyelid independently of the thickening of the lid. In exophthalmic goitre the eyes were abnormally wide open, and there was a tendency to retraction of the upper lid. The condition of the heart and arteries in myxœdema was exactly the opposite of that found in exophthalmic goitre, the pulse being slow and of high tension. In myxœdema the skin is thickened, and dried, the growth of the hair is impaired, and the nails are discolored. In exophthalmic goitre the skin is soft, moist and smooth, and the hair and nails grow rapidly. In myxœdema the patients suffer constantly from a sensation of cold; in exophthalmic goitre they suffer from a sensation of heat, and at times the temperature is actually elevated from half to one degree. In myxœdema the patients are particularly dull and apathetic; the patients with exophthalmic goitre are characteristically alert and active, and intensely emotional. In exceptional cases acute mania is a curious complication. Patients with exophthalmic goitre show an abnormal physical activity.

In the treatment of myxœdema by thyroid extract, he had repeatedly observed that the use of an excessive quantity produced a rise of temperature, increased rapidity of the pulse, burning of the skin, flushing and exophthalmos. The rapidity of the pulse had been in-

creased markedly in all his cases of myxœdema treated with the thyroid extract. He had never seen excessive sweating produced by the use of thyroid extract. It was well known that this remedy had been used successfully for the relief of obesity. The pathological changes described by Greenfield, in 1893, were exactly those which would occur in a gland whose functional activity was greatly increased, and they were quite comparable to the changes which the mammary gland underwent during lactation. It was perfectly possible for a gland to show hyperactivity without becoming enlarged. It was well known that a large proportion of cases of exophthalmic goitre recover, indicating that the disturbance was functional. A reduction of the secretion of the thyroid gland to a normal amount would result in a cure. The various remedies recommended for this disease caused a diminished activity of the gland. Thus, belladonna was one of the remedies, and it was quite possible that its beneficial action was due to its power to check glandular secretion. There was much evidence to show that the mental condition exerted a marked influence on the activity of the thyroid gland, just as it did on many other glands. It was for this reason that the rest cure proved beneficial. It was somewhat difficult to explain the well-known favorable action of aconite and veratrum vinde, although it is possible that by their depressing action on the heart the only materially diminished the blood supply to the thyroid gland. The glycerophosphate of sodium in doses of twenty grains, three times a day, he had found very useful in a number of cases. This remedy had been first used in the treatment of the ordinary goitres seen in Switzerland. Attempts had been made to treat cases of exophthalmic goitre by thyroid and thymus extracts, but the consensus of opinion at the present time seemed to be that this treatment was not only of no value, but was decidedly harmful. If the theory propounded were correct, there was, of course, every reason why the thyroid treatment should be avoided, and he did not think the few cases of reported improvement from this treatment would bear critical investigation. Very little was known regarding the thymus gland or its function, although in a few instances the thymus gland, in common with other glands, had been found to be enlarged in autopsies on cases of exophthalmic goitre. The most rational treatment would appear to be surgical removal of the thyroid gland, if

the theory advocated were correct, but as the disease showed a tendency to spontaneous recovery, operation should not be resorted to except in long standing cases, or those in which the symptoms were very urgent. Out of 190 recorded cases of exophthalmic goitre operated upon, 23 died within two or three days after the operation, 74 were cured, 45 were reported as improved or cured, 3 as not improved; and the final result was uncertain in 45. The deaths were not due to sepsis, but indicated a sudden poisoning of the entire system by an absorption of the thyroid juice during the operation. The patients knew very well that manipulation of the thyroid gland was liable to increase the symptoms of the disease; hence, it was not at all improbable that the handling of the gland during the operation greatly increased the quantity of thyroid secretion absorbed into the system. Many of the cases reported as "cured" had been kept under observation for a considerable time. As a rule, the cure had not followed immediately, but within several months after the operation, the exophthalmos being the last to disappear. In the severe and untractable cases, extirpation of the thyroid gland should be considered justifiable. It should be remembered that if a small portion of the gland were not left myxœdema would develop.

Dr. CRARY said that in all cases of exophthalmic goitre he had found that the hair fell out just as it did in myxœdema, although it was soft and fine. He had not seen excessive sweating in myxœdema, but in a series of cases of psoriasis treated by thyroid, this symptom had been noted. The fact that exophthalmic goitre was sometimes produced or aggravated by mental disturbance did not seem to him any proof that it was not due to disorder of the sympathetic system. He was inclined to think that the thyroid secretion was a secondary rather than a primary cause of the disorder. Undoubtedly the symptoms of exophthalmic goitre were due to an excess or change in the secretion of the thyroid gland, but he did not think the secretion acted directly on the tissues of the body, but in some way through the central stimulation. In fifty one cases of exophthalmic goitre, treated by the thyroid extract, the size of the gland had been diminished, but the other symptoms had not been relieved. It was difficult to understand in any case how the thyroid extract caused a diminution of the thyroid gland. It was possible that by prolonged use of this

extract the gland became sluggish somewhat after the manner of the stomach in secreting pepsin after this substance had been administered for a considerable time. He had treated a few cases of exophthalmic goitre with the thymus extract, but without any definite results.

Dr. R. C. CUNNINGHAM said that after extirpation of the thyroid gland in animals, the first symptom observed was tremor; then there was a marked rise of temperature and acceleration of the pulse. If, however, sufficient residual thyroid tissue were left, the animal might go on to the myxœdematous stage. Quite early after the operation there was sometimes a slight exophthalmos. He thought that many observers had compared the first with the second stage.

Dr. HENRY POWER said that about two years ago, he had carefully observed one of the first cases treated here with the thyroid extract. At the autopsy he had found a symmetrically enlarged thyroid, a thymus gland which weighed 13 grm., an infantile uterus and a lobulated kidney. The patient was twenty-six years of age. He had been impressed with the general lack of development in this case. After consulting the literature of the subject, he had found that there were a number of instances in which persistence of the thymus had been noted at autopsies on cases of exophthalmic goitre. Microscopical examination of the thymus gland showed normal connective tissue and the intrinsic cells in a partially necrosed condition. The thyroid showed considerable hypertrophy; the cells lining the alveoli were changed to a marked cylindrical condition, and they were cast off into the alveoli. There was practically no colloid material. The gland showed evident hypertrophy, but rather like an adenoma than in a normal direction.

Dr. LEONARD WEBER said, that about ten years ago he had succeeded in curing a case of Graves' disease by a course of iodide of potassium. This woman had presented the usual symptoms, although the goitre was of large size and rapid in growth. He had begun with ten grains of iodide of potassium, three times a day, and in five weeks had increased the dose to forty grains, three times a day. By this time there had been a marked improvement in all the symptoms. This treatment had been continued for two years, at which time the goitre had not quite disappeared, but gave no trouble. This case had led him to adopt a working theory—that the

disease is a hyperplasia of the thyroid gland. In several other cases he had noted similar benefit from this remedy. At the last meeting of the International Congress of German Surgeons, Mikuliez had spoken in favor of the enucleation of the goitré or ligation of the four thyroid arteries. Usually more than twelve months would elapse before all the symptoms would disappear. This observer believed that there was a primary neurosis producing hyperplasia of the thyroid. Kocher, of Berne, had tied three thyroid arteries in recent case, and he thought this a safer procedure. The glycerophosphate of sodium, internally administered, had also given him good results. He laid much stress upon the chemical theory of the disease.

Dr. A. D. ROCKWELL said, that a number of years ago in this Society very pessimistic views had been expressed regarding the therapeutics of exophthalmic goitré. In considering the etiology it was important to determine whether the effect on the nervous system was primary or secondary. We could now understand how even the faradic current applied to the gland might possibly be of benefit. He was of the opinion that all the external and internal methods of treatment should be attempted before operation, but that operations were of value and were justifiable in grave cases.

Dr. DANA said, that the chief symptoms of Graves disease appeared to be due to the overaction of the thyroid gland. Five or six years ago he had come to the conclusion that many of the symptoms of Basedow's disease were due to thyroid poisoning, the primary trouble being a neurosis brought on by some shock or emotion. He did not believe this was any more a disease of the thyroid gland than a gastric neurasthenia was a disease of the stomach. We should also remember that nearly all the symptoms of Basedow's disease might exist without the disease itself. Such symptoms would often follow a fright. He had been skeptical regarding the value of surgical treatment, not only because of its intrinsic danger, but because it did not seem rational, ten per cent. of his cases of Basedow's disease not showing any goitré.

Dr. SACHS said, he was thoroughly satisfied with the theory advocated by Moebius in this paper. He felt, with the last speaker, that the disease should be looked upon as a neurosis which produced in the gland a condition of hyperplasia, and afterwards of hypersecretion. There

were other hyperplastic conditions of the gland which were not associated with the symptoms of exophthalmic goitre. In young girls it was not at all uncommon to find a decided enlargement of the thyroid gland, lasting for a considerable time, and yet with none of the usual symptoms of Basedow's disease. Under the term Basedow's disease he thought we were including a number of different conditions. He had noted one case of goitre with exophthalmos. In this case the goitre disappeared entirely, and remained away as long as the thyroid extract was given, but the exophthalmos persisted. The treatment by the thyroid should not be altogether condemned, for in some cases there might be deficient activity of the gland in spite of the enlargement. In one case of thyroidectomy that he had observed, all the symptoms had abated except the exophthalmos. This patient was an extremely stout woman.

Dr. HALLOCK said, that he had had one case which had been apparently much benefited by the administration of thyroid extract. The case had existed for a number of years, and thyroid enlargement had been quite distinct. After the thyroid extract had been given for about a week, the pulse had dropped from 110 to 80, and ever since then the patient had been much more comfortable. It was necessary, however, to take the thyroid every few months. There had been no return of the enlargement except for a few days, while the patient had had a cold.

Dr. BOOTH said, that the evidence seemed to be in favor of the thyroid being the cause, or the chief cause of the disease. If there were an additional factor, it was probably a neurosis, or some involvement of the sympathetic. He was of the opinion that the thyroid secretion was altered in character. The first of his cases that had been operated upon he had first seen in January, 1893. At that time, the pulse had been 148 in September, 156 in November, just before the operation 146. In January, 1894, it had been 120, in March 104, in April 104, and since then, and during the past year 88 to 92. Four others had been operated upon, and in all of these there had been a very marked and prompt disappearance of the nervous symptoms. One case had died on the third day after the operation. He had not had any satisfactory results from the use of the thyroid extract in these cases of Basedow's disease, although he had carried out the treatment very thoroughly.

Dr. TERRIBERRY said, that he had always held the view that this disease was a neurosis. His experience had been that the majority of these cases got well without operation, and hence it did not seem to him justifiable to resort to the dangerous operation of thyroidec-tomy. His cases had been treated by rest and the application of cold to the præcordium to control the pulse. The rapid heart action was the main indication demanding relief.

Dr. LESZYNSKY said, that he had had one patient die from the disease itself. She was fifty five years of age, and had a marked dilatation of the heart. He knew of one patient who had been made very much worse by the thyroid extract, and he had never thought this treatment a rational one.

Dr. STIEGLITZ said, that he thoroughly believed in the theory advocated in the paper, but he was inclined to think that there was a disturbance in the secretion rather than an increase in its quantity. The disease could not be entirely explained by a disturbance of the gland alone. Some recent experiments seemed to show that no effect on the secretion of the gland could be produced artificially by irritation of the nerves. As only a few people develop Basedow's disease as a result of fright, it would seem fair to suppose that the disease was latent in these cases, and had been simply made manifest by the shock. He believed the tremor to be one of the most important symptoms of this disease, and he had seen it produced by thyroid feeding.

Dr. HERTER said, that he had seen a number of patients with Basedow's disease who were stout. He was disposed to cling to the view that there is primarily a nervous disturbance, and that the hypersecretion of the gland was secondary. The influence of fright might be explained by its depressing action on other glandular secretions, which were normally counteracted or neutralized by the thyroid juice. These conditions were not local, but were intimately associated with the general system. He had examined four glands from cases of Basedow's disease, and had been much struck with certain appearances. The acini in these were lined in places by an unusually tall cylindrical epithelium—epithelium such as is found in very actively secreting cells. This was most marked over certain papillary in-growths which projected into the lumen of the acini. The glands were more richly provided with cells than normal

glands. This fact seemed to indicate that the gland was secreting more actively than normal. From the altered staining of the colloid material, he had been led to infer that the secretion was altered in character. Considering the condition of the blood-vessels during life, the vascular changes in the glands were surprisingly slight. There were a number of apparently well authenticated cases of Basedow's disease which had been markedly benefited by thyroid extract.

Dr. STARR, in closing the discussion, said that the surgeons were agreed as to the great number of new blood-vessels found in the gland at the time of operation. The secreting activity of the gland had been particularly noticed in those cases treated by operation and simple exposure of the thyroid gland without extirpation. If the disease were due to disturbed secretion, it did not seem to him that we could get the results in myxœdema that we did from the thyroid treatment. The experiments performed by Dr. Cunningham went to show that the effect of extirpation of the thyroid in the lower animals was essentially different from that produced in the human subject, and also that the effects of the administration of thyroid extract to animals was different from that seen in man.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, March 23, 1896.

President, Dr. CHAS. K. MILLS, in the chair.

Dr. W. G. SPILLER read a paper on

CENTRAL HEMATOMYELIA AND TRAUMATISM AS CAUSES OF SYRINGOMYELIA.

Dr. GUY HINSDALE read a paper on the

ETIOLOGY OF SYRINGOMYELIA.

Sex.—Males are far more liable to syringomyelia than females. Out of 190 cases 133 were in males and 57 in females, or 70% and 30% respectively. The explanation of this is, no doubt, the influence of trauma in developing an innate tendency to the disease or in producing directly pathological conditions in the spinal cord which are followed by glioma and cavity formation.

Age.—The influence of age is probably active in great measure as permitting occupations and exposure to accident, etc., which act directly. The following table shows the frequency in the different decades of life as collected by Schlesinger:

AGE.	MALE.	FEMALE.	TOTAL.
1-10	4	1	5
11-20	36	8	44
21-30	53	25	78
31-40	30	12	42
41-50	4	7	11
51-60	3	3	6
61 +	3	1	4
	—	—	—
	113	57	190

The decade in which the disease is most frequently observed is that of 21-30 years. There is a tendency to a somewhat later development of the disease in women

than in men. One case of Schlesinger's (Obs. xvi) occurred in a woman aged seventy-eight years.

Occupation.—The vast majority of cases occur in those who live by manual labor. Overwork is frequently noted.

Trauma.—A large number of cases are apparently the result of injury, particularly to the back. We may mention particularly the cases of Oppenheim, Strumpell, Stadelman, Minor, Sokoloff, Silcock, Harcken, Bikeles, Alexis Thomson and Eskridge.

It may be said in this connection that Eickhorst found in experiments on animals, in which the cord had been divided or injured, that cavities formed frequently in the posterior columns and sometimes extended into the central canal.

In cases in which the syndrome of syringomyelia becomes suddenly present, especially when we have a history of a recent trauma we may naturally suspect the existence of hematomyelia, since hemorrhages of the spinal cord principally affect the central portion, *i. e.*, the gray substance.

The production of glioma in consequence of trauma requires a considerably longer time. It is quite likely that traumatic hemorrhages of the medulla may evolve hemorrhagic cysts, which would then have compact surrounding capsules of connective tissue, and might form the starting point for central gliomatous degeneration.

Such a pathogenic process may also occur when the central hemorrhage is not induced by trauma. In four cases, in which the organic lesion of the spinal cord undoubtedly resulted from trauma, Minor found many symptoms closely resembling those occurring in syringomyelia; for instance, the characteristic dissociation of sensibility. As the patients in question were still living, the diagnosis had not been confirmed. In a fifth case of traumatic hematomyelia, death occurred after several days; the autopsy revealed a tubular hemorrhage throughout the entire gray axis of the spinal column.—(*Archiv fur Psychiatric*, vol. xxiv.)

How far excess in alcohol, exposure to cold and dampness are factors in the production of the disease we cannot say. These influences are probably of small moment. It has been noted by Verhoogen and Vander-velden.

Infective diseases.—These have a distinct predisposing influence. The following diseases have been observed

in the previous history of subjects of syringomyelia;
Syphilis:

Cases of Simon, Schuele, Neuhaus (Obs. I and V),
Tornow.

Rheumatism.

Arthritis deformans (Klemm).

Pneumonia.

Typhoid fever, (Bruhl, Bernhardt, Freund, Westphal,
Schüppel, Sokoloff, Schultze, Remak.)

Tetanus.

Variola.

Erysipelas of the head.

Heredity.—In two instances syringomyelia seems to have assumed a family type. Verhoogen and Vander-velden report the disease occurring in two sisters and a brother. In an autopsy on one of these cases the anterior and posterior horns were found intact; the central canal of an oval form with the long axis transverse was found with its aperture closed and the cavity full of granular exudate and cells with gray nuclei and with cellular debris. In the mid-dorsal region there was sclerosis of the external part of the lateral column and of the columns of Burdach and Goll. The canal was the same as in the cervical enlargement. In the lumbar region there was sclerosis of the posterior internal part of the anterior column and in the whole extent of the lateral column and the anterior portion of the column of Burdach. Alteration of the canal most marked in the upper portion.

Dr. Andrea Ferrannini has recently described four cases in one family, including two brothers, Nicola and Francesca, their sister Marta and mother, Benedatta. At different times all have sought medical advice for the same affection. Panaris, paræsthesia and special forms of dysæsthesia limited to a single upper extremity developed without any apparent cause. Felons developed in the left thumb of the two brothers, in the right thumb in the mother and in the right index finger of the sister Martha. In Nicola, Benedetta and Marta the swelling was followed by necrosis and complete destruction of the last phalanx in each case. In the fourth patient there was no necrosis. In all four the incision of the swelling at different times gave exit to a very small quantity of pus, or sometimes only to blood. Marta felt neither the incision nor the extraction of dead bone much to the wonderment of onlookers. Similar

manifestations occurred in two of the cases, Nicola and Marta between the thirtieth and thirty-fifth years, and in the others at about the fiftieth year.

Panaritias were observed in all four patients and ulceration and acute œdema or pseudo-phlegmon of the forearm were noted in Nicola. There were marked vasomotor changes resembling in appearance erythromelalgia in Francesca's left hand. These appearances would subside at times and the hand would suddenly become white and cold as though dead, then painful at times constituting an acrodynia and acroparæsthesia—hyperæsthetic rather than anæsthesia. Disordered sensation to temperature in which heat was recognized as cold, and *vice versa*. Formication in the calves of the legs, ankles, sole of the foot or shoulder, chiefly on the left side of the body. Burning, or a sense of cold in the first three fingers of the left hand, or in only one, particularly the ungual phalanx of the thumb. Frequently at times a painful sensation as of pins pricking or stings of bees. Also a curious undescribed sensation in the base of the thumb. These sensations precede an attack of erythro-melalgia. The sensations were likened to the action of a file or the gnawing of an animal; the pain was deep and either intermittent or intensifying toward a crisis.

The pains were like those of syphilis, except that there was no nocturnal exacerbation and no increased pain on pressure.

A little ice in contact with the thumb gave the sensation of intense heat; a temperature of 5°C. was felt as hot at other points of the body, or gave the sensation of contact only. On the other hand, there was complete loss of heat sense even when tested to 100°C.

Fibrillary twitchings were present.

Stated Meeting, February 24, 1896.

Vice President, Dr. C. W. BURR, in the chair.

Dr. FRANCIS X. DERCUM read a paper on

TROPHIC LESIONS OF THE FEET TOGETHER
WITH SYMPTOMS SUGGESTING GLIOSIS OF
THE CORD.

Dr. F. SAVARY PEARCE reported

A CASE OF CHRONIC PROGRESSIVE PARALYSIS
DUE TO PRIMARY MUSCULAR DYSTROPHY;
AUTOPSY, HISTOLOGICAL STUDY.

(ABSTRACT.)

Mrs. F., 59 years of age, seen by Dr. S. Weir Mitchell first, in November, 1886. At that time she had had muscle paresis for eighteen years. There was no hereditary history of nervous disease, and no alcoholic, metallic or other toxic or infectious process as an ætiological possibility in the case. Of four children, one died of phthisis florida at the age of twenty-six years. The present trouble was attributed to a fall in 1866 (at the age of thirty-two years); for not long after the patient noticed a weakness of third and fourth fingers both hands, due to paresis of extensors of forearms. After several years of this insidious onset, double wrist-drop developed. The foot and leg extensors now failed in power and she constantly caught her toes in rugs about the room from inability to elevate the foot. There was no pain or tenderness of the parts involved. Locomotion gradually became more and more difficult. There was a distinct swagger in her gait. The flexor muscles did not become markedly involved until nine years later (at age of forty-one years). Then she had become very helpless.

Since that time there had been gradual increasing palsy in the flexor muscles of the forearms and arms; with more rapid loss of power in the flexors of thighs and in the calves of the legs. Knee-jerks and elbow-jerks absent. But little muscular response on striking

a firm blow. The order of flexor muscle paralysis had thus been the reverse of the antedating failure of the extensor muscles.

There was no fibrillary contractions; no anæsthesia existed. There was great quantitative and little qualitative change in the electrical response of the muscles.

The woman gradually lost power in the hands so that she could not make shaded letters in writing. Finally her ability to write at all was almost completely lost, and she had to be fed like a child. She could stand alone, however, for a short time when placed on her feet. This was probably made possible by the knees being held in extreme extension permitting the support to be almost entirely skeletal. The slightest push would occasion a fall. The patient complained of nothing during the prolonged illness. She was always bright and cheerful.

Intellect remained remarkably good until the last. Memory for classifying events was extremely acute. Speech and deglutition were unaffected. There was never any marked atrophy anywhere; on the contrary, the muscles generally were full and firm on palpation; all out of proportion to her extreme weakness; striking the parts produced transient redness due to vasomotor weakness.

The muscle palsy had thus existed for over twenty-seven years. On February 19, 1895, the patient took a chill and died of double lobar pneumonia March 7, 1895. Autopsy eighteen hours later. No scars or deformities were noted excepting slight atrophy of the hand interossei muscles; and rigid extension of ankles.

Much bright yellow fat infiltrated the abdominal walls, most all muscles of the thorax and abdomen having undergone fatty metamorphosis. Lungs presented the signs of recent lobar pneumonia limited to both bases. Heart was in an advanced state of fatty degeneration, only an area the size of a twenty-five cent piece being evident to the naked eye. Diaphragm had also become converted largely into fat.

Other organs presented no pathological signs. Biceps muscles of the arms were of fair size, but really masses of fat. Recti femori on the right showed the same advanced fatty change. Biceps and other hamstring muscles presented the same process to a less degree.

Spinal cord showed no macroscopic changes. The cord, sciatic, external and internal popliteal nerves, and portions of the muscles spoken of were preserved for study.

Pathological report by JAMES R. HUNT, M.D,

DIAGNOSIS, IDIOPATHIC MUSCULAR ATROPHY.

Spinal cord.—Specimen in Müller's fluid for six months, then stained by Weigert's and Pal's method.

The normal symmetry and relation of the gray and white matter was preserved at the various levels of the cord.

A few ganglion cells only in the lumbar and lower cervical regions were degenerated and destitute of processes. No spaces were found which would indicate the disappearance of these multipolar cells. The cells of Clarke's columns, and the direct and crossed pyramidal tracts were normal throughout the entire extent of the cord. Anterior commissure, anterior and posterior root fibres and roots showed no change. This was also true of the lateral and posterior columns.

The blood-vessels were everywhere distended with blood, the corpuscles in many places having wandered out into the surrounding structures. Vessel walls were moderately atheromatous. The cervical canal was packed with cells, effectively occluding its lumen. Numerous amylaceous bodies were present, especially in the anterior columns. The sections stained readily and showed slight thickening of the connective tissue processes of the pia.

The median and sciatic nerves were normal. There was some increase of the connective tissue framework.

Muscles.—The biceps of arm contained areas which might be called muscular, but much degenerated. Microscopically, the myosin was everywhere degenerated, the degree of change being varied. The greater number of fibres were granular, the granules here and there fusing together forming fat droplets. Some fibres showed the longitudinal striations described by Erb, co-existing with the transverse markings. Numerous sarcolemma sheaths were observed which contained no muscular substance whatever, the myosin having undergone complete destruction. Many spindle cells and connective tissue fibres add to the bulk of interstitial tissue which holds here and there in its meshes clusters of large fat droplets.

Dr. SPILLER spoke here.

Dr. JOSEPH SAILER and Dr. J. D. STEELE made

A PRELIMINARY REPORT ON THE CHANGE
PRODUCED IN THE CENTRAL NERVOUS BY
DIPHThERIA TOXIN.

Dr. CHAS K. MILLS presented

A SPECIMEN OF CYST OF THE FRONTAL LOBE.

NOTICE.

There will appear shortly a report of the combined meeting of the Philadelphia Neurological Society and the Philadelphia Pathological Society, which will be freely illustrated.

American Psychiatry.

UNDER THE DIRECTION OF

R. M. PHELPS, A.M., M.D.,

Rochester, Minn

With the Following Collaborators:

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ORIGINAL STUDIES AND REPORTS.

Periodicity Among the Insane. "Periodicity" refers here to the more or less regular cyclical change in symptoms,—a change to and fro between two differing states. In health the most marked example is menstruation. Slight cyclical changes have been noted as daily, lunar, etc., with changes of rest and work, sleeping and waking, etc. It is doubtful, however, if these changes in temperature, excitability, etc., are not causatively connected with occupation, temperature, eating, etc.

Entering the field of diseases, we find migraine and epilepsy as the most common of these inexplicable periodicities. Among

fevers we find malarial manifestations even more regular and noteworthy. We also note the vague alliance of this cyclical tendency, to the rise, the climax and the decline of a vaguely large number of other diseases. (For a large number of the diseases tend to exhaust themselves as we vaguely say, and not to go on indefinitely or cumulatively.) These latter, however, seem on the whole to help us little in studying the cycles in insanity—migraine and epilepsy are more closely analogous.

In mental troubles this element seems very prominent. We refer to that periodicity by which the mental state will vary by cycles, either in kind of mental symptoms or degree of those symptoms. The most suggestive causal connection at once apparent is the considerable number of the female insane in which it varies with menstruation. This at once suggests the study of the menstrual conditions and functions as most important in insanity. We find, however, rather more typical and pronounced cases not coincident with menstruation; also among the men. Yet I have seen one case of insanity as truly circular as any I ever knew, in which the circle was completed in one month. At the time of menstruation, there began rather suddenly an exceedingly destructive, maniacal condition which exhausted itself in about a week, at end of the second week she would be about sane; passing over into a quite clear, yet rather depressed condition, she would then dread the return and be anxious to try emmenagogues, baths, etc., to avert the next "spell." These most typical attacks occurred for about a year, when they gradually became lighter, until they were almost unnoticeable. During the years 1886 and 1887, she had the first cycles, beginning at the age of eighteen; since then there have been periods of one to two years at a time, when she has been well enough, as now, to be at home and at her usual occupation. About three-fourths of the time she is in a hospital.

Krafft-Ebing claims that the mental state of women while menstruating is changed, of course, fits in here, yet we cannot, it seems to me, as yet logically make the causal connection. Menstruation seems only one of several exciting causes. Plainly the instability is the chief thing the exciting cause may be trifling.

Large numbers of cases show no known exciting cause at all. We can study their forms, and their significance, however. The so-called circular insanity is the most marked form. Several years ago in a previous study of this element, I personally gave up the idea of this as any special disease, or even of any special type. One can only pick out the most extreme of these periodically varying forms and so denominate them "circular." Definite elements the name will not adhere to even then, for in some the melancholia will be nearly all, in some the mania will

be nearly all ; in some it will go from mania to melancholia ; in some a so-called sane state, doubtful usually, will intervene. In others still it will be but degrees of the same manifestation.

Below the so-called circular insanity we have the lower grades hardly classifiable. Some are very regular and very pronounced, some are very irregular, some are very faintly marked. Occasionally, one is daily, more often weeks or months, occasionally over a year is needed to complete the cycle. All the elements (though fairly steady in any one case) are variable.

But more particularly it is to be noted (best in a marked case), that one of these cycles can be passed over, and occasionally many of them. Farther, that bothersome term "recurrent" has crept into most of the hospital reports to designate cases in which the attack has been preceded by others. It means only this and does not designate any special form, and, therefore, ought not to be among the "forms." It should be in another table, one simply calling attention to the fact of the "number of attacks." Yet there is an alliance of recurrent cases to paroxysmal ones, as can be easily seen. They can grade into one another.

But a final notable characteristic is that though no two individuals may be alike, yet in the same individual the returning cycle brings exactly the same behavior symptoms, down to the minutest tricks of speech or habit-motions. These suggestions toward localization of mental as well as motor symptoms have been little studied.

Leaving the "forms" of these cycles, we might consider their significance. Authorities are fairly agreed that the "tendency to periodicity is strong in cases of an hereditary mental degenerative type." By this we mean, as I conceive it, that we have as types, the imbecile as one extreme and the acute psychosis at the age of thirty or forty as the other extreme, while between these we have this defective or degenerative type, a gradually invading mental reduction commencing at adolescence, or soon after, and having a permanent tendency downward. Naturally, therefore, it would be found chiefly in a nervous system in which there is by inheritance a strong tendency to develop early in life either to a mental perversion or a more pure dementia.

The strictly imbecile type is a typical permanent,—a non-periodic state. The typical psychosis is an uniperiodic, quite abrupt form (the same as pneumonia would be among physical diseases), while the type characteristic (of periodicity) is a degenerative multiperiodic form ; a form at or about adolescence, possibly before, showing an invading weakness with a growing tendency toward periodical manifestations. I know four or five patients who have attained old age, still quite sensi-

ble at times, after a whole lifetime of these storms of mental unbalance, seemingly enough in themselves to ruin the mind.

Although for conciseness and form it would be well to state all periodicities to go with adolescent insanity, yet the truth is that it departs considerably from this type at times. As to some approximately statistical backing for the above, I can only briefly state as follows: In 1892, among a population of 460 women, 346 were not past the age of menstruation, and thirty-seven of these were of a behavior decidedly more irritable, irritated or excited, maniacal or actively demented at or about the time of menstruation. Fifty-six other female patients had periodical variations, thirty-two of which were fairly regular and "predictable," the others rather vague. Among the men examples are as clear cut and typical, but not so numerous,—not even quite so numerous as among the female population, after those accompanying the menstrual flow are subtracted.

Periodicity, then, is an element in insanity that hints vaguely at causes and asks for more study, but which as yet, tells not of the why of its coming and going.

R. M. PHELPS.

ABSTRACTS.

Salaries and Perquisites of Superintendents and Officers.

This is the title of a paper read before the State Conference of Charities and Correction in Minnesota, by T. H. Titus, a trustee of the State Hospital. We make the following quotations:

"The tendency of the times is to take better care of all our defective classes, and as it becomes more generally understood that the State is giving this care and attention, a large number who have heretofore been kept by their friends and relatives are sent to our public institutions, until the expense of maintenance amounts to a large sum and it becomes necessary to look carefully after these expenses to see that economy is exercised in every department.

"It has been the custom in most of the older states, and this custom has been adopted in our own State, to pay the superintendents, wardens, and other officers a certain fixed salary, and in addition to provide buildings for them to live in, furnish the rooms, provide for their tables, give light, fuel, washing, etc. These perquisites in some States have become costly, and in many States abuse of privileges has crept in, until the expense of administration amounts to quite a large per cent. of the total cost. The natural tendency of human nature is such that it is very easy to get into an extravagant and costly manner of living when the expense is borne by some one else, and especially if borne by the State.

"As my own experience and observation has been for a somewhat limited time, I feel some hesitancy in suggesting any plan which involves any radical change in a custom which has obtained for so many years that it has become a part of the system of conducting prisons, reformatories, insane hospitals, etc. It has been customary to provide central or administration buildings, in which are to be found the general offices of the executive department—for superintendent, assistant superintendent, and members of the staff, with their corps of clerks, stenographers, and helpers necessary in the administration of a large institution. In this building there are usually set apart a suite of living rooms for the superintendent; also suites of rooms for the assistant superintendent and staff.

"As an illustration, take a building costing \$75,000. One-third of this is used for offices for administration purposes. The other two-thirds is devoted to the use of the officers for their living-rooms, and the cost can be computed as at least one-half the whole, or \$37,500. These rooms are usually occupied by the equivalent of two families. The State is thus providing two dwellings at a cost of \$18,500 each. These rooms are usually large and well built, and must be furnished in a suitable manner at quite a large expense. Would not the better plan be to provide for these officers a comfortable cottage for each family, costing a moderate sum, say \$5,000 to \$7,000, to be located within easy distance of the administration building, the unmarried members of the staff to be provided with rooms as at present? I do not think that the State should supply these families with food, heat, light, servants; but that the officers should receive a liberal compensation, and each family could then conduct their household affairs in accordance with their tastes and desires, and not be open to criticism. It would also give to the officers a degree of independence not now enjoyed by them, and enable them to live as other people do and bring up their families apart from the associations incident to institution life.

"The salaries of these officials having been regulated on the basis of furnishing them with their living should now be raised to cover their reasonable expenses. The other officers of the State,—governor, auditor, treasurer, judges,—all have their separate homes, and the average American citizen is much more content with a home of his own than he is with quarters, however elegant and well appointed they may be, provided at the expense of the State."

NEWS AND MISCELLANY.

The Pavilion Style A copy of the plans for the Cherokee of Building. Hospital for Insane in Iowa, shows a plan of a very pretty building three stories high. It is built on

the old radiating plan indeed, but with the following improvements: Every ward has clear views, front, rear and end, securing light, ventilation and practical isolation (corridors connect). Every ward has two large verandas or balconies where light and air can be obtained, even when patients cannot get out of doors. The corridors connecting the segments do not appear long or ungainly or expensive. An elevator is mentioned, which should be in every recently built hospital, especially when, like one for the insane, the heavy burdens of clothing and other things are continually carried, and the sick and infirm are to be considered.

The chances that a new hospital has with its opportunities to adopt improved methods, and its responsibility in that it determines the future environments of many decades, bring many serious questions. The economical clumping together of large groups of insane, regardless of protests, annoyances and offences to delicacy, which has been common in the past, will soon, we believe, call imperatively for more single rooms and less of dormitories. Not less than one out of every five patients, we believe, *imperatively needs* a single room, while more than half the remainder appreciate or need either a single or a double one; the large dormitories being offensive. In building a new hospital a special building for all, or nearly all, nurses off the wards, should be seriously considered, especially as (unlike the preceding element) it does not increase the expense. The preparing of a special ward, or better a special building for the acute cases should assuredly be considered, as also one for the physically sick. The assigning of room or rooms for special medical baths, for electrical treatments and for surgical work, is much better done at the outset. The planning so that plant can be enlarged by special cottage-shaped buildings needs consideration. Indeed, the cottage idea, as a whole, should be well studied, especially for true cottages, not dormitory annexes.

The Roentgen Photographic Methods. So rapidly spreading, so freely given to the world, and contrary to precedent, so easily and successfully confirmed by subsequent observers, are promising to become of special interest to alienists, inasmuch as repeated attempts are being made to photograph the brain. In view of the fact that the so-called photographs are partly silhouettes, formed by the varied power of varied substances (and varied thickness of the same substances) to transmit the peculiar light rays; we do not quite see how it is possible with the cranium intact, though we don't despair of some ingenious progress in that direction.

Periscope.

UNDER THE DIRECTION OF

ALFRED WIENER, M.D.

With the Following Collaborators :

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CLINICAL.

Hysterical Eructations. (Central blatt für innere medicin). G. Vènot in *Progress Med.* reports at length a number of cases of hysterical ructus. He admits that the affection is free from danger, but considers it of importance because, aside from its stubbornness, it renders social intercourse almost or quite impossible to those afflicted. It is possible, he says, to differentiate between a pharyngeal and gastric variety. In the first kind, a part of the air during expiration is held back through closure of the naso-pharynx and glottis, which afterwards is expelled by contraction of the pharyngeal constrictors. In the gastric form, it is essential that the stomach be filled with air. In functional stomach disturbances, and in anomalies of gastric digestion, gas may be formed in the stomach, but he does not consider such cases under this category. It can also happen, and this is the rule in the hysterical, that air is taken into the stomach. It may happen that through the mechanism of the described pharyngeal ructus, the air under peculiar conditions, instead of being expelled escapes downward into the oesophagus and stomach. Or during inspiration, closure of the glottis occurs, and the air, exerting on the mediastinal structures a negative pressure, it is forced into the oesophagus and from there into the stomach. In this way a considerable quantity of air collects in the stomach, and when expelled it does so with a loud noise. In one of the author's cases the eructations appeared two and three times a day and lasted three and four hours. The attacks were sometimes brought on by taking food, and sometimes by the most trifling causes. In another case the trouble developed gradually, and finally be-

came continuous, only ceasing during sleep. Both patients showed positive hysterical stigmata. While in some simple cases suggestive hypnotism is effectual, in others on the contrary, all therapeutic resources fail. So it was in the author's first case. After three months of varied treatment the patient was unimproved. In the second case hypnosis failed. Finally, painting the posterior pharyngeal wall with cocaine brought about a remarkable and progressive improvement. FREEMAN.

A Case of Hemorrhage into the Ventricles.

Doctor Giuseppe Seppili. (*The Gazzette degli Ospedali*, May 11, 1895).

The patient, a man aged 65 years, was stricken with a flaccid paralysis on the right side of the face with coma, January 23, 1895. On the following morning, there were noticed the following symptoms:—profound coma, spasticity and extension of the upper and lower extremities of the two sides, conjugate deviation of the head and of the eyes toward the right, facial paralysis of the right side, myosis, more marked on the right side, respiration irregular and arrhythmic, resembling the Stokes respiration, pulse frequent, temperature 37°. After four days of bilateral tetanic rigidity of the arms, with conjugate deviation of the head and eyes toward the right, the patient died. Traces of sugar were found in the urine; in the right gluteal region large excoriations of the skin were found; the reflexes were all abolished.

At the autopsy there was found in the left hemisphere a large hemorrhage which had destroyed the internal capsule, the caudate nucleus, and optic thalamus. Small particles of coagulated blood were found in the fourth ventricle. The cerebral arteries were in a state of diffuse atheroma.

KRAUSS.

A Contribution to the Subject of Tumors of the Spinal Cord.

With remarks upon their diagnosis and surgical treatment, with a report of six cases, in three of which the tumor was removed. By M. Allen Starr, *Journal of Am. Med. Sciences*.

From the cases reported, the author comes to the conclusion that the diagnosis of tumor of the spinal cord is to be made from some of the early and prominent symptoms, among which are, first, pain. This pain, he states, is of a severe neuralgic variety, usually being located at the peripheral termination of the nerve. The pain at first is unilateral, but later on, when the tumor grows and becomes larger, it is bilateral. He differentiates it from the pain of neuralgias and neuritis, stating that in neuralgias we have the painful points at the exit of the branches of the spinal nerves, and in the neuritis we have the tenderness along the nerve trunks.

Next to pain he gives as a diagnostic symptom, that of

compression of the cord by the tumor, producing pain referred to the periphery, increase of reflex activity, paralysis, and loss of sensibility in the segments below the seat of tumor. Among other symptoms great increase in the patella reflex with ankle clonus was observed; priapism is common. Later in the disease there is present painful spastic rigidity and violent contractions of the legs. Even when caused by the least irritation there is also present loss of control over the bladder and rectum, the latter symptoms depending on the location of the tumor.

The author states that in the very last stages of tumors of the spinal cord, we have trophic disturbances, with bed-sores, which can be recognized from those of a myelitis, by their early appearance in myelitis, and late presence in tumors of the spinal cord.

The author states that another important point is the location of the tumor, which symptom is carefully discussed.

Treatment.—In the treatment of tumors of the spinal cord the author claims that when the diagnosis has been made early enough, the tumor should be removed, the prognosis of such removal depending upon the character of the tumor. He states that the tumors are either benign, malignant or tubercular, the two latter being found more frequently. He states that when the tumor involves the spinal cord itself, it should be left alone.

The conclusion arrived at from the cases reported seems to be that although unfavorable results were obtained, better results could be had by earlier operation. As tumors of the spinal cord bring great suffering to those afflicted, an operation should be performed early, even if only to afford relief to the patient.

G. BROWN.

Course of Improvement in Motor Aphasia.

At the meeting of the Society of Biology on the 6th of July, 1895, Drs. Thomas and Roux reported, after the study of seventeen aphasic cases, that they had concluded that in cortical motor aphasia the course of improvement was as follows: The patient first perceives the appearance of the word; then associates together the syllables which form the word; third, the letters which form each syllable of each word, and at last the whole word. That is to say, such aphasic patients recover the ability to read in exactly the inverse order followed by a child in learning to read.—*Merc. Med.*, July 10, 1895.

MITCHELL.

"What is the Value of Operative Treatment in Epilepsy?"

E. Gaillard Mason, in a paper upon this subject, presents conclusions based upon seventy cases collected from contemporary literature, which reflect with fair accuracy the

present general consensus of opinion among neurologists as to the value of surgical procedure in such cases. The author confines his subject entirely to operative interference upon or through the skull and does not include, or refer at all, to surgical measures for the relief or removal of supposed or actually existent reflex causes. His conclusions are as follows :

(a) A certain small proportion of cases will be cured (3 out of 70).

(b) A certain larger proportion will be improved (6 out of 70).

(c) An even larger proportion will not be improved at all (18 cases out of 70, including 3 in which operation proved fatal and one dying subsequent to operation from malignant disease).

(d) An operation upon almost any case will produce temporary cessation of fits.

Of the entire seventy cases, only twenty-seven afforded data for positive conclusions, as stated above. Of the remaining forty-three, in forty-one the time of observation subsequent to operation was either not stated or was too short to justify any conclusions of positive value as to the final result, though most of this number were reported as either much benefitted or cured. In two patients the fits ceased, but as bromides had been continued, the cause of the cure was uncertain. An interesting inference, which seems perfectly legitimate as a conclusion, presents itself with reference to these forty-three cases. If accepted, it very materially modifies the status of surgical procedure in epilepsy.

If in the twenty-seven cases, in which sufficient time had elapsed, three positive cures were effected, it would seem justifiable to conclude that at least an equal proportion of the forty-one, in whom the time has been insufficient, would prove cured cases eventually. An estimate even higher might be fairly made, since none of these were fatal, while four of the twenty-seven died. Upon such a basis of estimation, the proportion of cures from operation, as indicated by this table, would be about ten per cent., with a mortality of about five per cent. from the operation. When one recalls the extremely disappointing results of treatment by drugs or other means in epilepsy (prognosis varies from five per cent. to nil, as to cures) it will be seen that this analysis very positively establishes the superior value of operative procedure. With a more intelligent discrimination in its application—many of these cases should never have been touched by the surgeon—there can be no doubt but that in selected cases, operative interference is our most valuable and certain resource. This necessity for intelligent discrimination is especially emphasized by Mason, who outlines, in detail, certain principles to be given careful consideration in all cases as follows :

"(1) Always consider an epileptic fit as a symptom of some underlying condition. (2) Inquire particularly and very carefully about the first convulsion: What was its apparent exciting cause; what was its character, general or affecting only certain portions of the body, and what portion of the body was affected at the beginning of the fit? (3) If there was an aura, investigate it carefully, as it will not infrequently give a clue as to the seat of the lesion. (4) If there has been a trauma or a suspicion of trauma, shave the head and look carefully for a scar or a depression. If there is evidence of a trauma in a position corresponding to the initial symptoms of the fit, an operation is usually justifiable. (5) If you cannot get a clear history of the case give a placebo and place the patient under competent surveillance until you can satisfy yourself as to the character of the fits. (6) Do not operate on a porencephalic child and expect to cure the epilepsy. Do not, as a rule, operate on a case of post-hemiplegic epilepsy in a child and expect to cure. (7) Do not operate on an old, idiotic epileptic, a victim of idiopathic epilepsy, with general convulsions of years' standing."—*Medical News*, March 21, 1896.

PRITCHARD.

Atypical Syringo-Myelia. Professor Raymond (*Rev. Intern. de Med. et de Chir.* Nov. 25, 1895).—In

a clinic at the Salpêtrière, showed a case of syringo-myelia of what he called the Brown-Sequard type, in which the disturbances of motion and sensation are situated upon opposite sides, as in the form of spinal paralysis known by the same name. The patient showed a hemiplegia on the left side of a spinal type, in which the face was not affected. There was a general lessening of Faradic excitability upon that side without any reaction of degeneration. The arm was much more affected than the leg; there were great exaggeration of the tendon reflexes of both leg and arm, with an ankle clonus. There was no trouble of sensation upon the left side, except a subjective feeling of formication. On the right there was no motor impairment at all, but sensory disturbances, formication, a burning in both the arm and the leg, with perfect preservation of the sense of touch, abolition of pain sense, and a loss of thermic sense. Professor Raymond had no suggestions for treatment to make, and considered the prognosis likely to be bad.

MITCHELL.

Two Cases of Hysterical Meningitis. At the Société Med. des Hôpitaux, Dec. 27, 1895, M. Galliard noted two

cases of what might be called, the one "hysterical" and the other "neurotic" meningitis, or conditions simulating meningitis. In the first, the hysterical case, a young woman suffered for several days with furious headache, violent pain in the epigastrium, uncontrollable vomiting, constipation, hyperæ-

thesia, tache cerebrale, stiffness of the neck ; the only symptom wanting to complete the picture was fever. She made an excellent recovery in a few days. The second case was a man of 26 years, described as not hysterical. The meningitis here followed a violent emotion, the patient having been falsely accused of theft from a shop in which he was employed. Some ten days after he was admitted to the hospital, with stupor, prostration, a countenance like a patient suffering with meningitis, epigastric pain, vomiting, foetid breath, loss of appetite, hyperæsthesia, constipation and retention of urine. There was no stiffness of the neck, and no fever. He had nocturnal delirium, great feebleness, and became extremely emaciated. After being three weeks in the hospital, he seemed of a sudden to awake from a dream, spoke naturally, and took food, and in fifteen days left the hospital perfectly well. These cases are not unlike the occasional ones, where the invasion stage of typhoid simulates meningitis. *Le Med. Mod.*, Dec. 28, 1895.

MITCHELL.

Late Appearance of Traumatic Myelitis. Dr. de Grand Maison describes two cases of slow development of myelitis some years after traumatism. The first case, a man with no history of specific or other serious disease, had a fall in descending a ladder during the summer of 1889, when he was 51 years of age. The lumbar region was somewhat bruised, and the spinous processes no doubt sustained contusions in the fall. He had severe lumbar pains for several days, but after this, for nearly a year, was quite free from pain, and it was not until the end of 1892 that his state became troublesome. At this time he had violent, even lightning pains, increased by walking or by other effort. He had difficulty in walking, staggered, and could not raise his feet from the ground. When seen by Dr. de Grand Maison in June, 1893, he was unable to stand alone, could scarcely raise his feet when standing, and even when seated found himself unable to move the lower limbs. The knee jerk was greatly exaggerated. There was no disturbance of sensation except a slight lessening of sensibility in the whole of the legs. Pressure upon the spot supposed to have been injured by the fall gave lively pain. In spite of treatment the patient's condition continued to grow worse ; within a month he had to take to his bed, and began to have crises of dyspnœa, and even during the intervals between the attacks, breathed with a certain difficulty. A bed-sore developed upon the sacrum, and rapidly extended. The bladder and rectum lost power, the legs become extremely atrophied, and while the dyspnœa disappeared, a tachycardia took its place. The patient died of exhaustion in the latter part of September, four years after the injury.

A second case, very similar in character, and of about the

same duration, is also reported. This patient had fallen down a flight of stone stairs, striking his back in the neighborhood of the sacrum. He had some pain immediately afterwards, which presently disappeared, and it was not until nearly six years from the date of accident that his condition was sufficiently bad to require medical attention, when he was found to have a state almost precisely like that of the patient already detailed—pains and other symptoms indicating a lesion of the cord. This patient also died, with symptoms analogous to those of the previous one. No post-mortem was held in either case, but the symptoms pointed sufficiently clearly to a combined sclerosis, affecting both the anterior and posterior columns. (*Le Med. Mod.* Dec. 25, 1895.)

The reporter has given details of cases of similar results following many years after injuries of apparently slight character to the cord. One patient, who had a blow in the lumbar region from a heavy weight, suffered from no serious after effects until more than twenty-five years had passed, when he began slowly to develop lightning pains, stiffness, difficulty in walking, and finally a meningo-myelitis, which ascended the cord, evidently starting from the seat of the old hurt. ("Late Consequences of Injuries of Nerves," by J. K. Mitchell.)

MITCHELL.

***Landry's Paralysis
With Lesion of the
Medulla.***

At the Soc. Med. des Hôpitaux, October 25, 1895, Dr. Ballet reported the examination of a case of Landry's paralysis with lesion of the medulla. The patient was thirty-three years of age, not syphilitic, but a determined drinker. He had had grippe in May, 1895, and his nervous affection began suddenly on the 11th of June following. He died upon the night of the 17th of the same month, and at the autopsy a myelitis was found which occupied the entire extent of the cord. Dr. Ballet insists upon the following special points: The enormous vascularity of the cord, especially in the anterior cornua, quite analogous to that which is seen in infectious experimental myelitis. The cells had suffered various degrees of injury. The chromatophile granules had disappeared; the prolongations of the cells were either absent or somewhat broken, and the cell itself was often only a granular mass without any nucleus. There were also lesions of the anterior roots and of the peripheral nerves, on which, strangely enough, no stress is laid by the observer. Obviously, this was a case of Landry's paralysis due to an ascending myelitis. The point of importance, however, is, what was its origin? A bacteriological examination was made of the cerebrum and bulb only, and these gave negative results. We are, therefore, thrown back upon the possibility of auto-intoxication, with the probability that it was alcoholic in its origin, as the patient was an alcoholic, and the liver was in a condition of fatty degeneration.

In commenting on the case Hayem said, that he did not believe that all cases of Landry's paralysis were due to myelitis, and that he questioned whether it was possible to explain the clinical aspects of such a case, and the death, by the minute cellular lesions shown by the newer methods of histological study.

MITCHELL.

Spasmodic Paraplegia Due to Primary Sclerosis of the Lateral Columns.

Drs. Dejerine and Sottas reported at the meeting of the Biological Society in Paris, November 30, 1895, the only case of this extremely rare condition which has hitherto been satisfactorily made out, except that of Strümpell, published in 1894. The patient suffered for twenty years from an increasing spasmodic paraplegia, with normal sensation and without atrophy, and died at the age of sixty-two from pneumonia. At the autopsy the lateral columns were sclerotic symmetrically with the greatest changes most marked between the fifth and twelfth dorsal roots. In this region the lesion occupied the pyramidal tract, extending forward beyond it. In the lumbar region it was localized in the pyramidal tract entirely. In the upper dorsal and cervical region there was a small sclerotic spot in the anterior portion of the column of Goll. The gray matter was normal, as were the cells of the anterior and posterior cornua. The motor cortex, the internal capsules and the isthmus revealed no perceptible lesion, this fact being considered by the reporters to point the sclerosis out as a primary one.—*Sem. Med.*, December 6, 1895.

MITCHELL.

Hyperpyrexia From Dislocation of the Spine.

Lambatte, of Schærbeek relates the history of a woman, aged 40, brought to the hospital with a dislocation of the spine, the result of a fall backward from a height of one and one-half meters (five feet), striking a solid horizontal bar. There was complete separation of the sixth and seventh vertebra, the spinal marrow being exposed as disclosed at the autopsy. The muscles of the trunk and lower limbs were completely paralyzed, the respirations being exclusively diaphragmatic feeble pulse, 120. The remarkable feature, of the case, was the sudden and excessive temperature which was 36.5° one-half hour after the accident, twelve hours later, 39°, and twenty-four hours later had reached 43°, death occurring quickly afterwards. Lambotte concluded that there must be some coloric centre in the region injured of a controlling or modifying character, a conclusion strengthened in this instance by the fact that no possible source of infection existed, and the hyperpyrexia could not have been, therefore, of microbic origin. (*Presse Med. Belge*, No. 50 *Abst in Bulletin Med.*, Jan. 12, 1896.)

PRITCHARD.

THERAPEUTICAL.

Contribution to the Action of Thyroidin. Dr. Becker, (*Deutsch. Med. Wochenschr.*, Sept. 12, 1895).—Reports a case of a two and a half years old child, that ate ninety thyroidin tablets (0.3 gramme each) at one time, without any alarming consequences following. The tablets were prepared by Dr. Döpper according to Leichtenstein's order. The child retained the tablets, not vomiting, and only after the administration of a laxative, its bowels moved. The condition and appearance of the child were unchanged afterwards, and nothing abnormal in the heart or circulation was found. It lost no weight, the appetite was good, and the urine showed nothing abnormal. Four weeks later, the child was still as healthy as ever. Based on this observation, the author is of the opinion that the fear entertained by the French doctors, especially of the thyroid containing a dangerous cardiac poison is unsustained. On the other hand, he advocates Leichtenstein's interpretation, viz., that the cause of the disturbances, sometimes observed, is the result of tissue changes, produced by continued administration of the thyroid. MACALESTER.

Saline Baths in Claude Wilson's (*The Practitioner*, September, 1895), reports a case of exophthalmic goitre in an unmarried lady of fifty, in which saline baths gave remarkably good results, after rest and drug treatment. (Nerve sedatives, tonics, strychnine, digitalis and strophanthus had been tried for months and failed utterly.) The baths given were prepared in such a manner as to imitate the natural waters of Nauheim as closely as possible. The chief rules for the administration of these baths are put down as follows:

1. Begin with weak baths (1 per cent. common salt, or 1 lb. to each 10 gallons of water, and 1 per thousand of chloride of lime, or $1\frac{1}{2}$ ℥ to each 10 gallons of water), free from carbonic acid and slightly below blood temperature.
2. Gradually increase the strength (up to 3 per cent. Na Cl and 3 per mille. Ca Cl), and duration of bath, and lower the temperature to 85° .
3. Add free carbonic acid (by adding bicarbonate of soda and muriatic acid) to the stronger baths.
4. Have the patient lie down for an hour after each bath.
5. Never give baths for more than four consecutive days without an interval.

The carbonic acid is not necessary in all cases, nor is it equally well borne by all patients. STIEGLITZ.

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Original Articles.

SCLERODERMA.¹

BY F. X. DERCUM, M.D.

Clinical Professor of Nervous Diseases in the Jefferson Medical College. Neurologist
to the Philadelphia Hospital.

IT is not without hesitation that I bring before you this evening the subject of scleroderma; first, because the relations of this disease to the nervous system have not been clearly defined, and secondly, because the name itself implies that the subject properly belongs to the field of dermatology. However, we may find some justification for treating this subject from the neurological standpoint, when we reflect that such diseases as myxœdema and acromegaly have been tacitly admitted as falling within the sphere of the neurologist, and further that various considerations, both clinical and pathological, suggest that scleroderma belongs to the interesting group of trophic affections of which the diseases just mentioned, myxœdema and acromegaly, constitute such conspicuous examples.

Before entering into a discussion of the position and relations of scleroderma, however, I propose to detail before you, briefly, the histories of three cases that have been under my observation. Following this a brief analysis of the subject will be attempted. Let me preface

¹ Read before the Academy of Medicine of New York, April 16, 1896.

the account of these cases by the general statement that probably in the majority, if not all of the cases of scleroderma, two, and even three stages, can be distinguished. Unquestionably, this is true of diffuse scleroderma, and I believe that it is equally true, though not so readily demonstratable, for the circumscribed and more purely localised forms. In the diffuse form there is early noted a condition in which the substance of the derma, and it may be of other structures, is increased in both volume and density. It is true that cases can be separated into two groups, according to the physical qualities of this enlargement; namely, into the indurated and the œdematous forms. Even a third form is recognized in which the volume of the skin is not so much affected as is its density and its resistance. However, whatever view be adopted, we are justified, tentatively at least, in speaking of an early or first stage of the affection, a stage which in typical diffuse scleroderma is characterized by infiltration and enlargement. I will begin by briefly detailing the history of such a case.

Case I, C. S., aged 43 years, a German, a machinist by occupation, while in good health met with the following accident on August 4, 1894. While in a position in which his head was strongly inclined forward, a piece of ice, weighing about twenty pounds, fell from a height of some fourteen feet, striking him upon the back of the head. He received a severe transverse lacerated wound over the occiput, severing all of the structures of the scalp. He was unconscious for a few seconds, and was subsequently taken to the Jefferson Hospital, where the wound was treated.

He remained at the hospital for four or five days. Though the wound healed promptly he continued to suffer severely from the shock of the accident, and also from severe occipital headache. It was for this headache that he was referred to the Nervous Department of the hospital. With the exception of a rather ragged scar the physical examination proved negative. There was no alteration of reflexes, no change in the eye-grounds, nothing but severe pain referred to the site of the injury. Some tenderness was also noted in the scar and adjacent structures, but this subsequently disappeared. I was inclined at this time to regard the case as one in which injury of the bone, possibly a fracture of the internal table had occurred, or more proba-

ble still, that the blow upon the head had resulted in a localised traumatic pachymeningitis. He reported at the Out Patient Department at irregular intervals until the fall of 1894. Not having seen him for some time I now noticed that his appearance had decidedly changed. His face seemed much fuller, and when I began as before to examine the scar over the occiput, I noted to my great astonishment, that the neck was swollen. I at once stripped him, and now observed that considerable swelling was noticeable over the shoulders and arms, and to a less extent over the forearms. There was also an unmistakable swelling of the skin over the chest, abdomen and back, and even to some extent over the thighs and buttocks. My first thought was of myxœdema, but not only the facial expression but the resistance offered by the skin differed markedly from that which I had seen in the last mentioned disease. The character of the hair, the shape of the hands, which were normal, also forbade such a diagnosis. The coarser folds of the features were preserved, but many of the smaller wrinkles were smoothed out and effaced. When questioned he stated that the pain in his head had persisted ever since the accident, but that between two and three months afterward he noticed that the skin on the back of the neck, and about the scar in the occipital region, was stiff and hard. This stiffness spread gradually around the neck and face, and then downwards over the shoulders, arms and trunk. The swelling had at the same time, become gradually more and more pronounced. In addition to the occipital pain already mentioned, the man complained of marked general weakness, and was excessively depressed in spirits. His knee jerks were markedly plus. Station and gait revealed no peculiarities. There were no sensory disturbances. Pigmentary changes were not noted in the skin at this time. The induration gradually increased until it involved distinctly all portions of the body, though the legs and feet were never affected to a marked degree.

An examination of the thoracic and abdominal viscera revealed nothing abnormal. A qualitative examination of the urine proved negative. The specific gravity of the urine, however, was high (1028) and when examined quantitatively, it was found to contain an unusual proportion of solids. It appeared to be merely a concentrated urine with the exception of the phosphates,

which were much in excess. Efforts were made to get the patient to measure the urine passed in twenty-four hours, but without success. A legitimate inference regarding tissue metabolism cannot, therefore, be made.

An examination of the blood was made for me by Dr. A. E. Taylor, of the Pepper Clinical Laboratory and revealed the following interesting conditions. The hæmoglobin was 78 per cent. The red corpuscles num-



FIG. 1. C. S. Scleroderma in stage of infiltration.

bered 4,200,000 to the cubic millimeter. In color, form, size and reaction to specific stains, these were in every way normal. The leucocytes numbered 16,000 to the cubic millimeter. A differential count of the leucocytes showed:—

Polynuclear leucocytes	56.2%
Polynuclear eosinophile leucocytes	2.0%
Simple mononuclear leucocytes	22.8%
Mononuclear eosinophile leucocytes	0.4%
Lymphocytes	18.6%

It will be observed first that the number of leucocytes taken as a whole is much in excess, and secondly that the percentage of mononuclear leucocytes is much too high. It is doubtful however whether a special significance can be attached to these findings.

The chemical examination of the blood revealed one interesting and decidedly pathological condition, namely, the presence of peptone, or rather of albumose. The



FIG. 2. As in Fig. 1. Scar over occiput is also seen.

fact that this substance has also been found in cases of concealed suppuration and in leukaemia makes this observation exceedingly interesting. I will not attempt to interpret its significance other than to point out how serious the modification of the normal metabolism must be to permit of its formation. As soon as the presence of peptone was discovered in the blood, I at once sought for it in the urine, but with a negative result. No peptone was found.

The impression given by the photographs (see Figs. 1 and 2) is merely that of a rather stout man, though a careful examination reveals an abnormal rounding out especially of the neck and shoulders. For instance no outline of the clavicle is seen. The tissues about the eyes also appear somewhat tumid. Because of the persistent occipital headache I suggested to him that surgical interference should be undertaken which should consist of excision of the scar and possibly of exploratory trephining. This suggestion had the effect of alarming him very much and he promptly ceased his visits to the hospital and did not return until December 10, 1895.

At that time the following condition was noted :

There is present evenly diffused induration all over the neck, trunk and arms. The skin offers in these situations a firm parchment like resistance. This condition is a little less marked on the hands and face than on the trunk. As a whole the volume of the induration seems slightly less marked than at former examinations. The face seems a trifle flattened and the nose a little sharper than before. There is a diffuse reddish pigmentation all over the back. In each axilla, in each groin and in each popliteal space there is a brownish-violaceous patch of pigmentation. On the inner aspect of both arms, especially upon the left, quite a number of depressed areas are seen to which the patient himself calls attention, describing them as hollows in his arms. Upon examination it is noted that the areas of depression are more resistant than the surrounding integument and that they are also somewhat whiter. They distinctly resemble patches of morphea save that the surrounding skin in which they are embedded is also infiltrated.

The movements of the trunk are somewhat restricted. The skin of the back grows excessively tense upon forward flexion. It is very hard and resistant. No pitting can be anywhere produced though persistent pressure with the thumb or finger appears to displace the infiltration for a short time.

Patient states that he sweats easily, that his hands and feet are frequently cold, that he is very irritable and easily excited, that he cannot do his work as well as formerly, that he gets tired earlier, and that he suffers from tinnitus.

He further states that the infiltration, especially in the hands, varies a great deal. He asserts positively

that it is much more marked when he is in a warm room or when the weather is warm. He also asserts that it is more marked when he is sweating. Examination of the thyroid gland is negative. The general impression made by the examination is that the infiltration as a whole is more tense than a year ago, though the bulk of the swelling has slightly diminished. K. J. still plus. Mental depression markedly less.

The case has been examined repeatedly and of late a more or less decided recession of the enlargement and induration has been noted. On the back of the hands it has almost completely disappeared as has also the difficulty formerly experienced in extending and flexing the fingers. There is every reason to infer that the patient barely escaped the dangers of a sclerodactyle. The subsidence of the swelling appears especially about the face to be accompanied not only by a disappearance of the infiltration in the skin itself but also by a beginning loss or disappearance of the subcutaneous fat. Headache has also become markedly less.

In summing up this interesting case we are impressed first by the prominent fact presented by the etiology. It is extremely probable that the disease in this instance was to be attributed to the general nervous shock of the accident and not to the wound. The latter admitted of ready disinfection and healed rapidly and without incident. There was nothing here to suggest an infectious origin as is suggested by the well known case reported by Touton in which a splinter was supposed to have given rise to the resulting scleroderma. In keeping with the etiological factor in this case was the persistent asthenia and mental depression. The knee-jerks which were plus presented the only noticeable physical sign of nervous disturbance and this symptom being isolated can hardly be considered as having much significance.

Evidence of neuritis, neuralgic pains and other nervous phenomena, with the exception of headache were absent in this case and the morbid process appeared to be limited to the skin and subjacent tissue.

Finally we should bear in mind the pathological condition of the blood as shown especially by the presence of peptone.

Case II, A. B., married, aged 31. One healthy child. No miscarriages. Family history is negative.

Personal History.—Beyond a history of the ordinary

diseases of childhood, nothing of importance can be elicited. No history of any serious illness. Menstruated at fourteen, and was well through youth and early adult life, until the fall of 1893. At this time she suffered severely from a sudden fright, due to a slight fire in her house.

She seemed to recover from this in the course of a few days, and appeared to be entirely well until January, 1894, when it was noticed one evening that her hands seemed to be "stout and decidedly reddish." It was also remarked subsequently, by her friends, that she was looking unusually well and becoming stouter. Gradually it was noticed that the hands were more and more swollen (although the change taken as a whole was not marked). The swelling was particularly noticed in the evenings, so much so that the finger rings, which she wore, could only be removed with difficulty upon retiring. About one month after the symptoms had first been noticed the difficulty in removing the rings became so great that she had to change some of them to other fingers. These symptoms persisted until the middle of February, when it was noticed that the feet and ankles were swollen in the morning upon rising. The patient had difficulty in putting on her shoes, even old shoes that fitted loosely. At this time it was also noted that "the finger tips were spotted, and little black specks appeared upon them, giving the fingers the appearance of a person who did a large amount of hand-sewing."

About the middle of April the skin of the pulp of the finger and about the nails became very sensitive, about the nails also it became a yellowish-greenish hue. An attempt to manœuvre them had to be abandoned because the fingers were too sore. About this time, also, the hands were so much swollen that the patient was not able to close the hand or put on gloves.

About the end of May swelling was also noted in the legs, and there now appeared in addition a slight pain in the left wrist. Decided general weakness was also now noted, the patient not being able to walk as far as formerly. The fingers were still exceedingly sore, "being dry and scaly on the tips." Towards the middle or latter part of June she began to suffer from pain, referred especially to the elbows and wrists, and also a sense of stiffness in the neck down to the shoulders. During the summer a slight puffiness of the face and eyelids made its appearance. At the same time the skin

over the bridge of the nose "became spanned or tight." The nose at this point was also extremely sensitive to the touch. During the summer her symptoms did not seem to vary much, save that the pain referred to the wrist and elbow, and the sense of tightness in the neck persisted and seemed to be more marked at times. In October there was decided increase of the pain in the wrists and elbows: it also at this time made its appearance in the knees and was very marked. The pains were now so severe, especially during the night as to interfere decidedly with sleep.

About this time the skin was swollen and stiff and somewhat reddened upon the whole of both hands and fingers, the changes being a little more marked upon the right hand than upon the left, and more pronounced upon the posterior aspects than upon the palmar surfaces. A similar condition existed in both arms gradually decreasing toward the elbows. The left side of the face presented similar symptoms, though to a slight degree. The neck seemed slightly enlarged and symmetrically so at the level of the larynx. This suggested a slight possible enlargement of the thyroid. Below the clavicle, upon the left side, there was a small area in which there was a slight stiffening of the skin. The feet and legs presented a condition resembling that seen in the hands, though to a far less degree. Motion seemed everywhere perfect except that it appeared to be interfered with by the stiffened skin, and there was no loss of sensation in any of its forms. A qualitative examination of the urine proved negative.

Her condition seemed to undergo no decided change during the following winter. At one time she had a slight swelling of the lymphatic glands under the angles of the jaws on both sides. This was accompanied by a slight febrile attack, the temperature ranging from 99 to 102.2°F. These symptoms appeared to subside in the course of a week. In December the skin in the swollen and stiffened areas seemed softer, while the joints of the limbs seemed more movable. A free perspiration was noted also at this time, the latter having, it appears, been rather scanty previously. A gradual subsidence of the swelling occurred in the early part of 1895, so that by March the face, the body, and legs seemed to have regained much of their normal appearance, though little improvement could be noted in the hands. A yellowish pigmentation appeared about this

time on the finger tips. In April some pigmentation was noticed over the back and buttocks. Some improvement seemed to take place in regard to the pains in the joints and the stiffness in the neck and back.

I first saw the patient July 17, 1895. In addition to the history thus far detailed, the following fact was distinctly elicited, namely, that the changes in the surface tissues antedated the pains by six months or thereabouts. It was also learned that the pains were not limited to regions in which the skin was especially affected, nor to superficial structures, but at various times involved also the joints. The pain in the joints was described as soreness, the joints being tender to pressure, and being also at times slightly swollen. This fact was especially elicited with reference to the left elbow joint.

Her condition was as follows at the time of examination: She was considerably emaciated. Examination proved that this was largely due to an extensive loss of the superficial fat. This loss, according to the patient's statement, had followed the administration of thyroid gland. The face looked somewhat drawn, the cheeks slightly flattened, the angles of the mouth slightly drooping. When she smiled and the mouth was well opened, the lips appeared tense. The tissues of the face felt slightly more resistant to the finger than normal skin. On the right side of the face and neck a number of minute reddish areas and scales were seen, apparently the result of a dermatitis, which had suddenly supervened the previous week, and had as suddenly subsided.

A careful study of the skin of the chest showed that it was freely movable over the subcutaneous tissues. It did not seem appreciably thickened. This was also the case with the skin over the abdomen. The latter had, however, a slightly coarse feel when folded between the thumb and fingers. Its surface, also, especially over the abdomen, felt slightly uneven or irregular. On the neck, chest and abdomen it was also pigmented, especially was this the case over the abdomen, the pigment being scattered in minute patches with apparently unchanged, or slightly changed skin between. These pigmented areas suggested atrophic changes. According to the statements of the patient and of her husband, the abdomen had at one time been firm and hard, and and this had also been the case, though to a less extent, in the skin over the chest.

An examination of the back revealed the skin freely movable, not appreciably thickened, and feeling quite normal to touch. It was also pigmented or darkened, but rather in a diffuse manner, and to a much less extent than the skin of the abdomen. The skin of the buttocks was distinctly uneven to the feel, the condition being similar to that noted in the abdomen, save that it was much more pronounced. Diffuse, extensive pigmentation was also noted on the buttock, the color being of a slightly redder tint than that noted on the abdomen. In the latter region it was pale brown with perhaps a faint yellowish or greenish tinge. Over the shoulders, arms and forearms the skin was movable and not apparently thickened or changed in texture. In the lower third of the forearm, however, and especially in the neighborhood of the wrist, it felt slightly firm and resistant. Over the back of the hands, dorsal surfaces of the fingers and thumbs, it was decidedly resistant and hard. Over the smaller phalangeal joints, especially over the first joints, it was much thickened, the appearance resembling that seen in a gouty finger. In addition to being firm and resistant, the skin was smooth, shining and glossy, especially over the fingers. The hands were excessively blanched and pale, the nails were slightly ridged. The hair over the arm and forearm, however, was much coarser, darker and pronounced than normally seen in women. It was not, however, brittle. The skin, while not moist, did not feel dry. The pigmentation noted over the abdomen and other portions of the trunk, was not seen in the least degree in the hands. The arms, however, were tinged with a faint grayish-brown, resembling that seen on the trunk, but much more slightly marked.

The thighs closely resembled the upper arms. The skin was everywhere freshly movable, and was not distinctly altered to the feel save in the neighborhood of the left knee, where just above the patella a small diffuse swelling an inch and three-quarters in transverse diameter was noted. This swelling felt firm and hard, but pitted distinctly upon persistent pressure. The skin of the legs resembled that of the thighs, save that in the neighborhood of the ankles it was distinctly resistant. This was true, likewise, of the skin over the instep and behind the malleolus, and to some extent in the soles of the feet. The toes, also, appeared to be involved. The feet, like the hands, were white and glossy,

though the latter feature was much less marked than the hands. The nails, as before, presented nothing unusual. The soles of the feet were slightly moist to the touch. The thighs and legs presented a discoloration similar to that seen in the arms, save that it was slightly more pronounced. As in the arms the growth of hair was more pronounced than normally. No trace of pigmentation was seen in the feet. Both hands and feet were cold to touch.

No symptoms were detected referable to the muscles, though a general wasting as from disuse or general ill health was apparent. They felt rather soft and flabby. They reacted normally to electricity. On attempting passive movements of the joints it is found that their motion was slightly restricted. This was especially true of the shoulder movements, these being restricted in upward and backward directions. This restriction could not be referred to any condition of the integument. A similar restriction was noticed on flexing the thigh upon the abdomen or on attempting abduction. Slight resistance was also met with at the elbows. At the wrist, metacarpal and phalangeal joints decided resistance was met with, both to passive and voluntary movement, the patient being both unable to extend the fingers and thumb, save to a limited degree and also unable to flex the finger and thumb more than to secure bare approximation. In the left hand even this approximation of thumb and finger was impossible. In other words a well marked sclerodactyle was present. (See Fig. 3). No tenderness over joints, muscles, nerve trunks or skin could be elicited. No loss of cutaneous sensibility in any of its forms. A small spot of redness was observed over the first joint of the little finger towards its outer aspect. The skin was glossy and hard and looked as though it were about to break down, presenting very much the appearance now and then seen in neuritis. On the helix of the right ear at its junction with the surface of the scalp was seen a small reddish surface in which some loss of tissue had evidently taken place. It suggested an ulcer which had healed.

There was also chronic conjunctivitis with loss of eye-lashes, especially those of the lower lid. She also suffered at the time from pain in the knees. This she described as dull and further stated that it was made worse by moving about. Her gait was a trifle stiff, but

in no sense spastic. Movements of the trunk were much restricted, especially flexion.

The visceral examination of the patient was practically negative. She was exceedingly neurasthenic. Menstruation had not taken place for ten months; appetite and thirst were much diminished.

A few days after this examination, she was attacked by a right occipital neuralgia of great severity, the pain being with difficulty controlled. She described it as burning and tearing in character. Great local tenderness was present and soon a superficial ulcer somewhat



FIG. 3. Right hand of Case II.

larger than a silver dollar made its appearance low down in the right occipital region. Hair and epithelium were rapidly shed leaving a raw surface which refused to heal for a number of months. Though closely observed for a long period subsequently neuralgic attacks or attacks of neuritic pain did not occur.

Qualitative examination of the urine proved negative. Quantitative examination however revealed a marked diminution in the proportion of solids. The specific gravity was 1009. The total amount of urine passed in the twenty-four hours proved to be a little over forty ounces, but even assuming fifty ounces as the

amount, the total solids were less than 500 grains. The diminution was especially marked as regards the urea; according to the most liberal estimate less than 275 grains were excreted daily. Uric acid was but slightly diminished if at all. This was also true of the chlorides while the phosphates were in excess.

Repeated microscopical examinations failed to reveal any evidence of renal disease. An active diuretic treatment was at once instituted, the patient taking Poland water in large quantities daily. The quantity of urine soon averaged sixty ounces daily. At first the total solids fell from 1.8 per cent. to .8 per cent. and the specific gravity to 1004. Gradually however the output of solids increased so that by December 23, 1895, it had reached 2.8 per cent. and the specific gravity 1014. This rise with slight fluctuations was maintained and at the last examination made March 25, 1896, the total solids were 3.6 per cent. while the specific gravity was 1018.

Too much importance must not be attached to these findings for the influence of food, of exercise and of other factors influencing tissue metabolism must be taken into account. We must remember that our patient at the time of the first examination was consuming but little nourishment, was taking almost no exercise and that her body weight was much diminished. It was only eighty-nine pounds. During the period that increased elimination resulted the patient was taking an increasing amount of food, was exercising to some extent in the open air and later on was being vigorously masséed. That these facts in a measure explain the findings in the urine appears extremely probable. I do not however think that they explain the latter altogether. It is certainly a very suggestive fact that along with the changes in the urine the joint pains largely subsided, that there was no recurrence of neuritis or neuritic pain and that there has been a progressive improvement in the patient's condition, not only as regards the general health but also as regards the scleroderma itself.

An examination of the blood by Dr. Taylor revealed hæmoglobin 65%; red corpuscles 4,050,000, leucocytes 10,000 per cubic millimeter; some irregularity in the red corpuscles whose color was paler than normal. A differential count of the leucocytes yielded:—

Polynuclear leucocytes	64.4%
Acidophile polynuclear leucocytes.	0.8%
Mononuclear and transitional forms of leucocytes	28.0%
Lymphocytes	6.8%

As in Case 1, the porportion of mononuclear and transitional leucocytes is much too high, but qualitatively these cells are normal. A few of the leucocytes presented fragmented nuclei, signs of degeneration. The chemical examination of the blood failed to reveal albumose or peptone. I again sought for peptone in the urine but failed as in Case 1, to find it.

A number of interesting facts regarding the infiltration of the skin were noted during the progress of the case. It was observed, for instance, that the swelling above the left knee varied considerably from time to time, being sometimes much more marked than at others. At another time a streak of infiltration was noted in the left forearm several inches in length. It made its appearance in a few days, and almost as rapidly disappeared. Over the body as a whole, the pigmentation noted began gradually to lessen until at present but traces of it are left. At the same time the infiltration of the skin has grown distinctly less and less, until at present the skin has assumed an almost normal appearance over the face and extremities save in the hands and feet. Over the lower part, the forearms, wrists and backs of the hands the improvement while marked has not been as great as elsewhere. The variability noted in the swelling above the left knee was also noted in the induration of the hands. A number of times during the past three months the infiltration of the back of the hands and of the fingers was much lessened, the tissues being movable, softer and far less resistant, only to be followed by a more or less marked recurrence of the infiltration. Along with the general improvement noted in the skin, there has been an improvement in the movements of the joints, save in those of the phalanges of the hands. Here the improvement has been slight, although massage and passive movements have been faithfully practised. At my instance Roentgengraphs were made of both hands by Prof. Arthur W. Goodspeed, of the University of Pennsylvania, with the view of detecting disease of the joints or bones. As is well known the cartilage of the articular surfaces is transparent to the Roentgen ray, and for this reason in the healthy hand the joints of the metacarpus and of the various phalanges reveal a clear transverse space between the ends of the bones. In these pictures, however such a space was observed only in the joints of the thumbs and in the joints formed by the

metacarpal bones and the first row of phalanges. In the other phalangeal joints these clear spaces were wanting, and close examination enables us in at least one of the pictures to trace a shadow which lines the ends of the bones like a separate layer, just as though the transparent cartilage had been made opaque by the deposit of some substance not permeable to the Roentgen ray. The question arises, Have we here a mere calcareous infiltration, or an actual formation of bone to deal with? This information the rays do not give us, and practically, I fear, it makes little difference.

A steady increase in weight accompanied the im-



FIG. 4.

provement of the general condition and menstruation has also been re-established for three months past.

In considering Case II. a number of important points attract our attention; first, the character of the induration, which varied at times in certain places, and pitted slightly upon persistent pressure; secondly, the almost universal disappearance of the superficial fat; thirdly, the evidence in favor of the involvement of structures other than the skin and the subcutaneous tissue. Thus, the radiographs of the fingers leave no doubt of the involvement of the phalangeal joints, while regarding other joints this is a legitimate inference. For instance, about

the shoulder joints the skin is soft and pliable, and has evidently completely recovered; but, notwithstanding, the movements of the joints are still much restricted. This is also the case with the movements of the trunk, flexion being more or less interfered with, although the skin of the back is soft and pliable, and can be gathered into folds between the fingers. It certainly seems as though either the ligaments of the spinal column or possibly the joints of the articular processes had been involved in the pathological process. This is true likewise of the hip joints, the restriction of movement in which can likewise not be ascribed to any condition of the skin, but depends beyond a doubt upon a change either in the joint itself or in its surrounding connective tissues, its capsular and other ligaments.

Again, the pains present were also a marked feature. They were of various kinds: first, aches in the limbs and joints independent of movement; secondly, pains referred to the joints dependent upon movement; thirdly, nerve pains, suggesting neuritis. In addition to the changes observed in the skin, various trophic changes claim our attention. They consisted of the ulceration at the base of the occiput above described, ulcerations over the phalangeal joints, the partial fixation of the fingers constituting the marked sclerodactyle, and finally the ridging of the nails.

In passing I may say that in January of this year a deep and angry looking ulcer made its appearance upon the first joint of the little finger of the right hand. At first this ulcer was simply dressed antiseptically, and kept under observation. It gradually grew deeper, while its borders widened. It was then treated by bovine, that is the ulcer having been washed with ordinary soap and water and thoroughly rinsed, a pledget of cotton soaked with bovine was applied and retained in position by a light bandage. This dressing was repeated twice daily. In a few days it was noted that the ulcer was becoming more shallow, and that granulations were rapidly springing up. In a short time the granulations were so profuse that the surface of the ulcer instead of being depressed was distinctly raised above the level of the surrounding skin. The local feeding with bovine was then discontinued, and a powder consisting of boracic acid and iodol was applied in its stead, and in a short period the ulcer was well healed, without depression and covered by substantial white tissue.

Case III.¹—[Figs. 5 and 6] M. B.: a woman; married; age 38 years; a native of Switzerland. Father died of unknown cause. Mother lived to the age of 65 years. Patient was married at the age of 22 years. Has had eight children, five of which are living. Had two miscarriages. Ten or twelve years ago suffered from malaria. Has never had a distinct attack of articular rheumatism.

Her husband being a retail ice dealer, she was in the habit of going into a small ice-house at frequent intervals during the day for a number of years.

Her present affection began about seven years ago, when she noticed that the tips of the fingers of both hands were swollen and enlarged. The tips of the fingers became clubbed, and some of them ulcerated. About three years ago the skin on the back of the hand became thick and infiltrated. This swelling did not, however, pit upon pressure. At the same time telangiectatic spots appeared upon the face. The infiltration became gradually more and more marked in the hands and fingers, and gradually interfered with their movements. Little by little the fingers became fixed in position. Over the phalangeal articulations small ulcerations occurred at various times—the result of traumatisms. Soon after the changes in the hands were noticed, swelling and infiltration appeared about the face and neck. This subsequently subsided, and left the features in the condition to be described.

Present Condition.—As the patient enters the room it is at once noted that the face is markedly altered and that there is also present a decided sclerodactyle of both hands. The skin is drawn tightly over the forehead and nose, it is shining. Numerous reddish spots are noted over the face due to enlarged capillaries. The ears are firm and unyielding. The patient cannot open her mouth as wide as formerly. The skin of the scalp is tightly adherent. The hair is somewhat thinner than formerly. Slight itching is also present. The appearance of the face is quite characteristic and the tightness of the skin and drawing of the features can readily be inferred from the photograph.

The left hand presents the following condition. The skin on the back of the hand is atrophic and tightly adher-

¹ For the opportunity of studying this case I am indebted to my friend, Dr. Jay F. Schamberg, of Philadelphia.

ent. The index, middle and ring fingers are ankylosed at the first phalangeal articulation being fixed at almost a right angle. There is also a small ulceration on the ring-finger at this situation. The little finger is excessively atrophied being only an inch in length. This atrophy is evidently accompanied by disappearance of bone. The skin of the fingers is tightly adherent to the phalanges. The ends of the fingers are clubbed and the nails are incurvated.



FIG. 5. Case III.

The right hand presents a condition similar to the left. All of the fingers are more or less ankylosed. In both forearms the muscles are wasted while the skin is thinned and tightly drawn. Atrophic changes are less marked in the right than in the left arm. Patient states that her maximum weight was 108, that she now weighs but 86. Superficial fat is almost entirely absent from the body. She states that she is much more sensitive to cold than formerly. She declares that the sensation of tension in skin is worse in cold weather and

that the hands are at times cyanotic. The patellar reflex is minus; sensation is everywhere normal. The pupils react normally. The mucous membrane of the mouth and especially of the soft palate is unusually pale in color. Some four years ago she began losing her teeth until she was finally compelled to have them altogether replaced by a plate.



FIG. 6. Appearance of Case III, several years before onset of the disease.

In October, 1895, she was delivered of a healthy child after a rather easy labor. During the pregnancy the thyroid gland became greatly enlarged. She remained persistently weak for some time after her confinement and the telangiectatic spots over the face became much more marked than before.

The examination of the urine revealed a condition similar to that met with in Case II. The specific gravity

was again only 1009. The estimation of the total output of solids was again less than 500 grains, while that of the urea was decidedly less than 200 grains. The quantity of uric acid appeared to be but slightly diminished, while the phosphates were normal. These facts probably bear here the same significance as in Case II.

In Case III the striking features are the marked atrophic changes in the skin of the face, of the forearms and hands and the very great degree of sclerodactyle. Neuralgic and other nerve pains were absent. The only nervous symptom of consequence was irregularly recurring mental depression. She has recently passed through a brief period of melancholia.

The parts of the body especially involved by the infiltration and atrophy were evidently the face, the head and upper portions of the neck, the forearms and the hands, that is just those portions which were exposed to cold in entering the refrigerator.

Before attempting to draw any inference from the cases before us and from the facts detailed, let us make a brief analysis of the symptomatology of scleroderma and determine if we can what are really the essential symptoms of the disease. When we look over the great mass of reported cases we find that the most diverse symptoms have been recorded. We find, for instance, on the side of the nervous system hypochondriasis, hysteria, depression, melancholia and mental impairment; also, insomnia, giddiness and headache and among the purely physical symptoms, chorea, tremor, ataxic movements, spasm of muscles, fibrillary twitching, local paresis, signs of intracranial lesion such as inequality of the pupils, and even symptoms suggesting Graves' Disease. Various disturbances of sensation have also been put on record; paresthesia, anæsthesia and the more common symptoms of sense of tightness and constriction. The great variety of the nervous phenomena observed, as well as the fact that they are infrequently present indicate that many of them are of an unessential character and yet the fact that nervous symptoms, though limited in number, of one kind or another are usually present indicates that the nervous system is more or less involved in this curious disease. The further fact that no one nervous symptom or group of symptoms is present in all of the cases does not militate against this inference. As showing the

inconstant character of the nervous phenomena we need refer to but the reflexes as exemplified in the knee-jerks. These may be normal, exaggerated or diminished.

Among the trophic changes observed are first the swelling and infiltration or induration and subsequent atrophy of the skin and subcutaneous tissues. Other and less constant trophic changes are erythematous and telangiectatic patches upon various portions of the body; pigmentation, various ulcers, small vesicles and even pustules, excessive desquamation, urticaria, and ridging, thickening and brittleness of the nails or shrinking and atrophy of these structures. Among the subdermal changes are the loss of the superficial fat and the involvement of the bones and joints, more especially of the hands. Evidently the trophic changes center primarily in the true skin and subcutaneous tissue. Changes in other tissues are as a rule not only later in onset but many of them are evidently secondary in character.

When we come to analyse the post-mortem findings, we find, first, as to distribution that the changes are by no means limited to the skin and subcutaneous tissue. As we have already seen, changes in the joints and in the tissues about them, can be inferred from many of the clinical phenomena, and is well shown in Roentgen pictures. That changes in the joints occur, particularly about the hands has been shown more especially by Legrange, who observed in sclerodactyle union of apposed joint surfaces by fibrous tissues, loss of articular cartilage and calcareous deposits in the fibrous tissues about the joints. Similar joint changes were also noted in the case studied by Verneuil and Mirault, in which short fibrous bands extended between the apposed joint surfaces, and in which there had been destruction of synovial membrane. Changes in the bones, at least of the fingers, is, of course, also at times, to be inferred from the clinical findings. Actual examination of the tissues has revealed in the hands of Wolters an interstitial inflammation of the bone, while Lagrange describes a disseminated inflammation affecting periosteum, bones and joints. Changes have also been noted in the muscles and other tissues. Foullerton, who examined the amputated leg of a case of scleroderma, infers from the widespread character of the change that scleroderma is primarily a disease of genetically related groups of tissues of mesoblastic origin; that is of the derma, the sub-

cutaneous tissue, the muscle fibres and the fibrous capsules of the joints. Varied changes have infrequently been noted in tissues other than those here mentioned. They appear to be without special significance, and have been noted in the lungs, the heart, the liver, the peritoneum, the kidneys, the spleen, the intestine and the aorta. Cardiac changes seem to have been noted rather more frequently than others. Thus out of twenty-eight cases collected by Lewin and Heller some change, such as hypertrophy, degeneration, myocarditis or pericarditis were noted in fourteen cases.

The result of the microscopical examination of the skin in scleroderma is, of course, well known, and consists of an increase of the connective tissue elements, together with sclerotic or inflammatory changes in the blood vessels. That similar changes take place in other tissues is not only probable, but evident from the examinations which have thus far been made. It is, however, extremely doubtful to my mind whether this affection can be considered primarily as a sclerosis. Certainly the phenomena presented by cases in which we have a recurring, or even a shifting infiltration, and which sometimes pits or yields upon persistent pressure as it did in two of the cases I have described, shows that we have every reason to believe that the changes found in the tissues microscopically are terminal changes. The clinical phenomena certainly justify the inference that primarily the connective tissue is infiltrated, swollen or enlarged. The single fact that the infiltration on the back of the hands in Case II. varied considerably from time to time, that at times the skin was soft and flexible, and at others densely infiltrated, shows that some variable or changing process not consistent with that of a primary sclerosis was at work. That a change does take place in the connective tissue other than a primary sclerosis is also held by Lewin and Heller, who regard it as very conceivable that the enlargement of the individual fibres of connective tissue depends upon their infiltration with an albuminoid substance, a saturation with some coagulable material. Unna holds that the changes are primarily in the connective tissue and especially in its intercellular or ground substance.

A view that presents itself as plausible is that the primary change in scleroderma is an increase or chemical modification of the collagen of the skin and subja-

cent tissues. Certainly the initial change appears to be a swelling and infiltration of the collagenic tissues. We have here a certain analogy between this disease and myxœdema. That myxœdema is accompanied by connective tissue changes, and that there is also an infiltration of the connective tissue with mucin, a substance normally present in the intercellular or ground substance, is well known, and it would seem that just as in myxœderma there is an increase of the intercellular mucin, we have in scleroderma an increase of the collagen or some, as yet, unknown chemical change in this substance, which increases the bulk of the tissues containing it. That, however, these changes differ radically from the changes in myxœdema is shown not only by a microscopic examination of the skin, by the symptomatology and by the clinical history, but also in the difference following the administration of the thyroid extract. In four cases collected by Lewin and Heller no improvement followed the administration of this remedy, so powerful in myxœdema.

Whether or not the change in the connective tissue elements is dependent upon the faulty action of some ductless gland, as is the case in myxœdema, must for the present at least, remain a matter for speculation.

It is probable that when improvement does follow the use of thyroid extract in scleroderma, that the effect is to be attributed not to action upon the swollen and infiltrated skin, but upon the subcutaneous fat, and that it materially hastens the atrophy and disappearance of this tissue in the atrophic stage of the disease.

The theory that the disease is a vaso-motor neurosis, explains nothing. It merely states in a vague way that there is some relation between the changes in the skin and the condition of the central nervous system. That, however, some special, as yet unknown condition exists independent of the nervous system, is proven by the varied facts of etiology. In the first of the cases detailed here to night, for instance, a severe physical shock to the nervous system appears to have been the exciting cause. Evidently, however, such a cause could not have been the real factor at work, for in such case scleroderma instead of being a rare affection, would be an exceedingly common one. It would be as common indeed, as traumatic neurasthenia. The same is true of psychic shock, the supposed etiological factor of the second case. Certainly scleroderma must be looked upon

as among the rarest of the sequelæ of psychic shock, and so it is with the cause apparently operative in the third case, repeated exposure to the cold of a refrigerator. If cold were a potential factor in the production of scleroderma, how common an affection it would be! Every winter, every climate, every avocation in which exposure to cold was attendant, would bring with it a history of scleroderma. Such a relation, it is needless to say, does not exist. Other causes which are every now and then assigned, such as muscular over-exertion, severe labor, menstrual disturbances, pre-existing infectious diseases need only to be mentioned to show how rare a sequence scleroderma is of such causes.

Whether the observations made in the cases detailed this evening in regard to the urine have any significance it will remain for future observers to determine. The number of cases is, of course, altogether too limited to permit of an inference. The facts, however, appear to be in the highest degree suggestive. The urine in Case I. (which was in the state of infiltration) suggests that an excess of waste products was being eliminated. That the urines of Cases II. and III. should have so closely resembled each other may be a mere coincidence. I doubt, however, whether this be really the case, because in Case II. distinct improvement followed, as we have seen the use of diuretic measures, and measures calculated to increase tissue metabolism. The significant fact was observed of an actual and undoubted increase of the waste products eliminated hand in hand with marked improvement. A significant fact also was the prompt subsidence of the pains in the joints.

Whether the discovery of an albumose or peptone in the blood of Case I. has a special significance is, of course, open to question. It is suggestive, however, that Case I. is in the early stage, or stage of infiltration, while Case II. is in the stage of subsidence, and it may be that this explains the difference in the findings of blood-examination.

In closing, I feel that I owe an apology for bringing to New York so scant a contribution, but my apology is first, the intense interest which trophic diseases have excited of late years, and secondly, the conviction that any facts, great or small, in so barren a field as scleroderma, must be welcome. Finally, I am not without hope that agitation and discussion of this subject may result in some practical suggestion: perhaps in a dis-

covery which will enable us to control the disease as readily as we control that sister affection, myxœdema.

ADDENDUM.—In the discussion which followed the reading of the paper, Dr. N. E. Brill raised the point that in the semiflexed position of the fingers, such as obtains in sclerodactyle, the Röntgen rays could not pass through the phalangeal joints without encountering osseous tissue, and that therefore no clear interpha-



FIGS. 7 AND 8.

langeal spaces would be seen in the pictures. Since the reading of the paper the writer has performed another experiment with the Röntgen rays in order to determine whether this criticism holds good. It was at once learned seen that the rays, when the fingers are strongly flexed at the phalanges, do not reveal clear interspaces, even in the normal condition.

The writer then determined to Röntgenograph a phalangeal joint of Case II. in the *lateral* position. At the same time a Röntgenograph was made of a perfectly

healthy forefinger held in the same position. Examination revealed the white line occupying the position of the cartilage already mentioned in the body of the paper, a line which seems to indicate calcareous or osseous deposit, and which is not seen in the healthy finger. (See Figs. 7 and 8.)

HEMIATROPHY OF THE TONGUE WITH THE REPORT OF A CASE.¹

By C. W. BURR, M. D.

L. B., female, mulatto, 31 years old, married, came to the Medico-Chirurgical Hospital, September 23, 1895, complaining that her "tongue was crooked." Save that she had had syphilis, her personal history is negative. In February, '95, she began to suffer from headache, usually behind the left ear, and often preventing sleep. At times there is quite severe vertigo. Several weeks after the onset, headache persisting, she awoke in the night and found the left side of the tongue swollen, black and painless. For some hours she could neither speak nor chew, but breathing was not interfered with. After a few days, all symptoms passed away except headache, and she thought no more of the matter until recently as stated above, she noticed by accident that her tongue was deformed.

Examination.—She is a spare, poorly fed, muddy-skinned mulatto girl. The left half of the tongue is only about one-half as large as the right. The upper surface is irregularly depressed and elevated. There are no scars. When protruded, it turns sharply to the left. Fibrillary twitching is not present. The mucous membrane is normal. Common sensation and taste are preserved. The pharyngeal reflex is present. The palate moves well.

There is no palsy or wasting of the face. The pupils are of normal size and react well to light and with accommodation. Station and gait are normal. There is no inco-ordination of movement in the arms or legs. The knee jerks are much increased. There is an attempt at but no true clonus, that is passive flexion of the foot causes, two or three jerky movements. There is no glandular swelling or tumor about the jaw or in the neck. Touch and pain sense are normal in the face and hands, but she complains of numbness in the hands as if she had on tight gloves. There is no trouble in speaking, chewing,

¹ Read at the April meeting of the Philadelphia Neurological Society.

or swallowing. There is no pain or rigidity in the neck muscles. Examination of the pharynx reveals no disease of the bones.

11,5,'95. — During the past week the patient has had difficulty in swallowing "solids seeming," she says: "to stick in the throat and then to fall down." She can swallow liquids well. The trouble came on suddenly. Examination reveals no change in her condition.

1,8,'96.—Speech has been thick for ten days. The left half of the tongue is swollen but painless.

1,9,'96.—Last evening the patient was suddenly seized with pain in the right side of the head accompanied by double vision. There is some drooping of the right upper eye-lid, and the right pupil is dilated.

1,10,'96.—Speech is still thick. Both upper eye lids droop slightly, and the power to lift them varies. One attempt may succeed, and the next fail. The pupils are normal in size and react sluggishly to light. Diplopia is present on looking to the left. The swelling of the tongue is almost entirely gone.

2,5,'96.—Diplopia has disappeared. Both pupils are dilated, the right more than the left. They do not react to light, and only very slightly with accommodation. There is left-sided ptosis (see illustration.) Dr. A. H. Cleveland examined her throat twice, once soon after she came to the hospital, and again on February 2, 1896. He found the movements of the vocal cords normal. On the right side of the soft palate, there is a distinct slit which may be congenital or due to old specific ulceration. Dr. Fox reported the eye grounds normal.

2,15,'96.—The patient states that yesterday she suffered from occasional, quite severe involuntary jerking of the left arm.

4,10,'96.—The general condition of the patient has greatly improved since she first came under treatment, and she is almost entirely free from headache, but the other symptoms are about the same. There is paralysis of the left half of the tongue with great muscular wasting and without sensory symptoms. There is no palatal nor laryngeal palsy. The knee jerk is exaggerated and there is still a slight false clonus. There is no ataxia. There have been no physical signs of heart or lung disease during the time she has been under observation, but yet, she has had a persistent hard, dry cough which is probably due to disease of the vagus. The urine contains neither albumen nor sugar. She has had occasional

attacks of vomiting, which she says come on without cause and unaccompanied with nausea. She has been under specific treatment constantly.

I am not at all sure what the lesion is in this case or what the lesions are since there may be more than one the ocular symptoms being entirely independent of the hemiatrophy. The question is to determine the cause of a sudden palsy of the left hypoglossal nerve followed by atrophy with some involvement of the pneumogastric nerve, but without any palsy of the palate or larynx, during the course of which affection there occur transient ocular palsies, and a second attack exactly like the onset of the disease. I am inclined to think that there is not nuclear trouble, because of the absence of palatal and laryngeal palsy, Pott's disease and a consequent meningitis may be excluded, because there are no symptoms of bone disease. It is not secondary to disease of the spinal cord. A neuritis of the periphery of the nerve would not account for any of the symptoms except the atrophy, and surely would not be sudden in onset. Taking all the symptoms into consideration, I am strongly inclined to believe that there is a syphilitic meningitis affecting in greater or less degree the whole base of the brain and compressing the affected nerves.

This diagnosis would also explain the ocular symptoms. Hemiatrophy of the tongue is rare. We will consider neither the most frequent cases due to direct injury of the hypoglossal nerve by a wound or pressure of a tumor, nor the exceedingly rare cases of peripheral neuritis, but only those caused by disease in or near the medulla. Of late years the condition has been studied very carefully in relation with affections of the spinal cord. Indeed, its association with locomotor ataxia is relatively so frequent, though absolutely rare, that in any case in which the course of the wasting has been chronic, the possibility of the existence of locomotor ataxia should be thought of. Its absolute rarity in association with posterior sclerosis, is shown by the fact that in Koch¹ and Maries² paper, only six cases are mentioned. It is a rare complication of general paralysis of the insane,³ a disease, which certainly has some kinship to locomotor ataxia. It may also occur in syringomyelia, as is shown by the following case now under my

¹ *Revue de Medicine*, 1888, vol. viii, page 1.

² Dudley, *Brain*, vol. xxx, and Ormerod, *St. Barth. Hosp. Reports*, vol. xxi, page 30.

care at the Philadelphia Hospital. The patient is a young colored man, who has marked wasting of arms and legs with palsy and contractures, unequal knee-jerks, absolute inability to distinguish hot from cold though common sensation is normal. The right half of the tongue is much wasted. But it may occur also of course apart from any disease of the spinal cord.



Hemiatrophy of the Tongue.

Thus Leudit⁴ reports two interesting cases. The first was a woman 32 years old. She had had severe right-sided head pains for eighteen months. For about five months there had been difficulty in chewing and swallowing. The voice was affected. The wasting affected the right half. On protrusion, the tongue pointed to the right and was tremulous. Common sensibility

⁴ *Annals des Malad, de L'oreille etc.*, 1887, xiii, page 614.

was normal but taste was blunted on the right. The uvula deviated to the left and there was palsy of the right vocal cord. Olfaction was absent. The visual fields were preserved, and the pupillary reactions normal. The knee-jerks were normal. There were no signs of tabes. Under iodide of potash and spraying with cocaine, smell and taste returned. The diagnosis was a syphilitic lesion of the nucleus of the 12th nerve. The second case was also syphilitic. The patient's voice was greatly affected, and there was abductor palsy of the left vocal cord and marked atrophy of the left half of the tongue. There were no tabetic symptoms. In Schiffer's⁵ case, no cause was discoverable. Ten years before the patient had been shot in the occiput by a 6 mm. calibre ball, but the ball was removed two days later, and the cure was prompt, the only serious inconvenience being slight right-sided deafness which disappeared in a few weeks. This accident may have had something to do with the wasting, or nothing. The author believes there was a lesion, a hæmorrhage for example, in the nuclei of the right hypoglossal, accessory and vagus. The patient came for treatment on account of a persistent cough which was not connected with any serious thoracic disease, a slight bronchitis, and a little emphysema being the only pathological conditions found. There was right-sided atrophy of the tongue with diminution of the muscular reaction to both faradism and galvanism, but without reaction of degeneration. Common sensation and taste were normal. There was paralysis of the right vocal cord. The central organs were healthy, and the reflexes normal. R. von Limbeck's⁶ case is interesting, because the beginning was acute and the entire history known, while in many cases the abnormal condition of the tongue has been unknown until discovered by the physician. Syphilis seems to have been pretty well excluded. The patient, a woman 38 years old, about three weeks after recovery from cellulitis of the back of the hand and forearm, due to an injury, was seized with pain in the neck and difficulty in swallowing. Hoarseness which had previously existed, suddenly became much worse. The right side of the tongue was atrophied and furrowed. Fibrillary twitchings were present. Movements to the right and upward were incompletely, to the left and forward well done. Common sensation and taste were normal. The

Revue mensuelle de laryngol., etc., 1886, vol. 1, page 377.

⁶ *Prager Med. Wochenschrift*, 1889, page 181.

electrical reactions were preserved. Pharyngeal sensibility was good. There was paresis of the upper right vocal cord. Gait and station were normal. The knee jerks were active. There was no involvement of the facial or eye muscles. Sight, hearing, and smell were good. Ophthalmoscopic examination was negative. Disease of the right hypoglossal nucleus was diagnosed.

The onset sometimes is sudden. Thus Hirt¹ thinks there was in his patient embolic softening in the nuclei of the right hypoglossus, vagus and accessory nerves. The patient was a woman 76 years old. After an attack in which she lost consciousness for a moment, and speech for half an hour, her voice became weak, indistinct, changing into falsetto frequently. Later, difficulty in swallowing appeared, regurgitation of fluids being frequent. Salivation and dribbling developed and later wasting. On examination there was found to be no trouble in the facial muscles or the lips. Labials were formed without difficulty. The tongue was tremulous and directed toward the right. The mucous membrane of the tongue on the right was wrinkled and furrowed lengthwise, and its substance soft, spongy and yielding. Touch and taste were normal. There was pronounced reaction of degeneration. The right recurrent laryngeal nerve was palsied.

In a few instances the wasting has occurred, not only in the tongue, but also in certain of the neck muscles, and has even invaded the arm. In Pel's² case for example, there was atrophy of the left sterno-cleido mastoid and trapezius. The patient was a male, 34 years old, who had had gonorrhœa and probably syphilis. The trouble developed gradually; difficulty in swallowing being the first symptom, liquids regurgitating through the nose. The voice was nasal. Later there were severe pains in the neck and back of the head, unbearable at night and subsiding under the use of potassium iodide. The left half of the tongue was wrinkled, furrowed and atrophied. The electrical response was lessened to both currents, but there was no reaction of degeneration. On protrusion, the organ pointed to the left. Movements to the right and forward were almost lost, downward, upward, and backward almost normal. There was slight fibrillary twitching. Taste and touch were normal. Articulation was good. The left palate and palatine arch were

¹ *Berliner Klin. Wochenschrift*, 1885, page 411.

² *Berliner Klin. Wochenschrift*, 1887, page 521.

paretic. The uvula was drawn to the right. The pharyngeal reflexes were normal. The left recurrent laryngeal nerve was palsied. The knee jerks were completely absent, but there were no other tabetic symptoms. Diagnosis, syphilitic arteritis affecting the nuclei of the hypoglossus, vagus and accessory nerves. In a case of Jackson's⁹ there was also widespread wasting the atrophy involving the left supinator, biceps, brachial anticus, deltoid, and infra and supra spinati. These muscles did not react to Faradism and anclé > calc. There was anæsthesia to touch and pain on the summit of the shoulder. The left pupil was larger than the right and did not react to light, but did with accommodation. There was palsy of the right half of the palate and right vocal cord. Diagnosis: syphilitic disease involving the roots of the nerves. The pupillary condition is inexplicable. In another case,¹⁰ that of a man 50 years old, the onset was sudden. He lost his voice, or rather became hoarse, and the tongue turned to the right like a hook. On examination there was complete right-sided palsy of the tongue with wasting. On protrusion the organ deviated to the right. The fold of the palate was dragged to the left. The right shoulder was lower than the left and he could not shrug it so well. There was no facial palsy, but he could not whistle so well as before. The right vocal cord was palsied. The suddenness of onset and the existence of Bright's disease justified the diagnosis of apoplexy. In a case reported by Stephen MacKenzie,¹¹ the wasting also passed beyond the region of the tongue. The patient was a syphilitic man 30 years old. There was palsy and wasting of the tongue, sterno-cleido mastoid, and trapezius muscles on the left side, and palsy of the left soft palate and vocal cord. The palpebral fissure was narrowed on the left. Later there was palsy and wasting of the left teres minor. The knee-jerks were normal. Taste was unimpaired. The pupils were irregular, but reacted normally and the left globe was somewhat retracted. The author concludes that a very limited and localized lesion of the conjoined nuclei or roots of the spinal accessory and hypoglossal nerves would explain the paralysis of the soft palate and larynx and one-half of the tongue. The roots must have been implicated in syphilitic disease he thinks, since the

⁹ *Lancet*, 1886, i, page 689.

¹⁰ *London Hosp. Reports* vol. i, 1864, page 361.

¹¹ *Clin. Soc. Trans.* xix, page 317, *Brit. Med. Jour.* 1883, i, page 408.

wasting of the trapezius and sterno-mastoid shows that the external branch of the spinal accessory was involved. The ocular symptoms showed involvement of the cervical sympathetic. In Möbius' ¹² case the onset seems to have been as in several of the others sudden. The patient, a woman, 48 years old, was seized with violent headache, nausea and vomiting followed by ptosis of the left side and diplopia. On examination there was total palsy of the left oculo motor nerve. The left pupil was twice as large as the right and reacted very little to light. There was palsy of the left side of the palate and left vocal cord, and palsy and wasting of the left half of the tongue, which on protrusion, turned to the left. Articulation was good. Electrical excitability was greater on the left. Two cases dating from childhood are reported. The first is quoted from Henschen by Koch and Marić. In the patient's ninth year about a year after an attack of scarlet fever with uremic complications; his mother noticed the tongue was scarred. When he came under observation in the 28th year, there was right-sided hemiatrophy. Sensation was normal. The right side of the palate was broader, more dependent, and less moveable than the left. The uvula did not deviate. The right vocal cord approached more nearly to the middle line and its mobility in inspiration was lessened. There were no symptoms of tabes.

The second is reported by Turner. ¹³ The patient, a female, five years old, presented atrophy of the right half of the tongue, paralysis of the soft palate and larynx, difficulty in swallowing liquids, feebleness of cough, loss of power in right arm with atrophy and atrophy of both optic discs. The symptoms dated from a series of right-sided epileptiform attacks, which began six weeks after an attack of scarlatina, and recurred daily for two months. At the beginning there was paralysis of all the limbs. The legs and left arm gradually improved, the right arm to some extent. The knee-jerks were absent. There was no syphilitic inheritance. The symptoms were thought to be due to some specific meningeal lesion at the base of the brain involving the ninth and a portion of the eighth cranial nerves on the right side.

Remak ¹⁴ reports a case which is interesting on account of the associated symptoms, and his opinion that

¹² *Centrbl. f. Nervenheilkunde*, 1887.

¹³ *Lancet*, 1889, page 1230.

¹⁴ *Berliner Klin. Wochenschrift*, 1886, page 401.

it was due to lead poisoning. The patient, a man 42 years old, sought treatment on account of palsy and wasting of the hand dating back four months. On examination the voice was toneless (*klanglose*.) The vocal cords were motionless in abduction during inspiration. There was bilateral palsy of the posterior crico-arytenoid muscles. Later there was paresis of the right half of the velum palati. The uvula in phonation was drawn to the left, and the right half of the velum was elevated and stretched. The tongue was smaller on the right side and was protruded, forming a bow to the left. The upper surface of the left side was smooth, while the right side was uneven. Fibrillary contractions were present. The right side felt thinner and softer than the left. The atrophy appeared to affect the superior longitudinal and transverse muscles on the upper side, while no change on the under surface was observed. The muscles on the floor of the mouth were equally developed on the two sides. The movements of the tongue were not interfered with. Mastication, deglutition and articulation were normal. The right side showed degeneration reaction, the left slight diminution to galvanism. There was slight left sided ptosis. The eye movements to the right were slightly diminished and associated with nystagmus. Later there was loss of the pupil reflex to light—the only tabetic symptom present. The author holds that the most satisfactory explanation of the case is a partial bulbar palsy and slight polio encephalic nuclear atrophy.

Post-mortem examinations of cases of hemiatrophy have revealed many different pathological conditions. It has been proven by Koch and Marie, and others, that when it occurs in locomotor ataxia, there is always nuclear disease. We are justified in assuming the same lesion in general paralysis of the insane and syringomyelia. When, however, we study the cases unassociated with disease of the spinal cord, we find so many and such varying conditions that the frequent uncertainty in pathological diagnosis is justified. Thus, in 1832, Dupuytren¹⁵ reported the case of a man 30 years old, who was seized with pain in the left posterior part of the head preventing motion and disturbing sleep. After a few days the pain passed to the upper lateral part and to the left of the neck. Later there was difficulty in speech so that he could not be understood. The air passed to the left side of the tongue when he whistled. There was

¹⁵ *Clinique Chirurgicale*, vol. i. page 403, vol. iii, page 364.

pain in the inferior angle of the left jaw and in the cheek, but no palsy. The tongue began to waste on the left side and atrophied greatly. The mucous membrane remained intact. When protruded it turned to the left. When examined speech was perfectly clear. There was no loss of taste. Two years later taste was a little diminished. The patient died with symptoms of compression. Post-mortem, many hydatids were found at the base, and one in the neighborhood of the anterior condyloid foramen had greatly compressed the hypoglossal nerve. In the following year Choisy¹⁶ reported another case due to hydatids. A man, 36 years old, complained of pains in the right side of the face and head, following a fall in which he struck the back of the neck. He was in bed for four months. Shortly after he began to have difficulty in pronouncing certain letters, and the left half of the tongue became soft, flabby, ridged and discolored. Two years later there was much atrophy and difficulty in speech, with hoarseness. The movements of the neck were diminished. There was no loss of sensation, and taste was normal. The tongue protruded to the left. Swallowing caused cough. There was a soft tumor in the corner of the left sterno-leido-muscle at the left mastoid process. There was persistent hiccough, vomiting, and constipation, and later aphonia. Death was sudden. Post-mortem an hydatid cyst about the size of a goose egg was found in the left occipital fossa. The cyst was in two parts separated by a narrowing, which corresponded to the posterior lacerated foramen. Within the cranium the nerves on the two sides were normal, but a marked difference was seen after their emergence from the jugular foramen. On the left side the glossopharyngeal, spinal, pneumogastric and hypoglossal were atrophied, almost filiform. In the case of Hyem and Girondeau,¹⁷ the medulla was found post-mortem to be surrounded by a fibrous sheath, which was prolonged down the hypoglossus to the anterior condyloid foramen. The nerve was greatly diminished in volume and was fibrous. The nucleus of the hypoglossal was atrophied. The patient, was a man, 46 years old. There was much atrophy of the left side of the tongue. The sense of taste was preserved. The muscles of the face, the supra and sub-hyoid and sternocleido mastoid were normal. Death was due to cancer of the duodenum. In the case of

¹⁶ *Bull. Soc. Anat. de Paris*, 1833, viii, page 6--20

¹⁷ *Revue de Médecine*, 1883, iii, page 190.

Habershon,¹⁸ a cancer was found in the basilar process extending into the temporal bone on the right side and involving the eighth and ninth nerves. The patient was a woman, 52 years old, who had cancer of the breast. There was much pain in the head, back and limbs. The right side of the tongue was flabby, wrinkled and soft. The electrical reaction of the affected muscles was diminished. Sensation was perfect. The right sterno-hyoid muscle was palsied.

Trevelgan¹⁹ reports a case in which post mortem both occipito-atloid joints were rough and worm eaten. The axis and the castilages were also diseased. The membranes at the base of the brain, especially at the origin of the left hypoglossal nerve were thickened. There were no changes in the hypoglossal nucleus or in the infra nuclear tract. The left hypoglossal was smaller than the right, and microscopically there was considerable increase in the connective tissue and atrophy of the nerve fibres. The patient was a woman, 25 years old. Seven years before she had had a suppurating gland in the neck, but otherwise had been well until eight weeks before coming under observation. She was then seized with pain and stiffness on the left side of the neck after returning from a walk. Five weeks later she had a chill, and the next morning the tongue was swollen. Shortly afterwards the left side was noticed to be antrophied. Sense of taste was absent. Later the pain grew worse. She became delirious, had a convulsion, Cheyne-Stokes respiration, a second convulsion of both sides of the face and right arm, and a temperature of 102°. In a case of Hughlings Jackson,²⁰ the atrophy was only a part of widespread nervous trouble. At the autopsy, the membranes were thickened. There were nodes on the cerebral arteries and spots of softening in the brain and medulla. The patient was a male, 43 years old, who had had syphilis fifteen years before. There was some loss of sensation on the left side of the face, taste was poor on the left side, and common sensation was diminished on the left palate and back of the tongue. The left side of the palate and the left vocal cord were palsied. Swallowing was difficult. Hemiplegia with loss of speech came on later. Some months ago I saw with Dr. W. J. Taylor, a woman who complained of

¹⁸ *Med. and Surg. Practice*, 1867, Feb. page 140.

¹⁹ *Brain*, 1890, xiii, page 102.

²⁰ *London Hosp. Reports*, 1867, iv page 315.

headache and weakness and pain in the right arm and legs. Later symptoms of one-sided disease of the medulla appeared, and the left half of the tongue wasted. At the necropsy we found an infiltrating, unilaterall tumor of the medulla oblongata. Not very rarely caries of the bones has been found, and a study of such cases has been made only recently by O. Vulpius.²¹

Conclusions: Hemiatrophy of the tongue with palsy can only be caused by a lesion of the hypoglossal nerve or its nucleus in the medulla. Atrophy will not occur if the disease is situated anywhere above the nucleus. The nerve is purely motor, and has no sensory functions. When there is hemiatrophy without symptoms referable to other nerves, the lesion is almost certainly in the nerve trunk since the nucleus is in such close relation with other nuclei that no lesion which occurs clinically, is at all apt to affect it without involving them. On the other hand, the presence of symptoms referable to other nerves does not prove that the lesion is within the medulla, because the hypoglossal, pneumogastric, and spinal accessory nerves are so close together that a lesion affecting one, as for example, meningitis, is apt to involve all. In cases due to nuclear disease, fibrillary twitching is much more apt to be found than in neuritis, but as appears from a case recently reported by A. Marina,²² twitching may be present in peripheral disease.

The lesions found post-mortem vary greatly. There may be chronic nuclear degeneration, especially in association with diseases of the spinal cord, the results of embolism, thrombosis, or hæmorrhage, a tumor arising within the medulla and confined to one side, a tumor growing from the membranes or bone, meningitis, caries, hydatid cysts, or direct injury from wounds. It is probably more frequently associated with locomotor ataxia than with any other disease of the spinal cord, but it may occur in syringomyelia and in the spinal type of general paralysis. There is no reason why it should not occur in insular sclerosis. In bulbar paralysis, the atrophy like the other symptoms is practically always bilateral. Most often the patient can not give a clear account of the beginning of the trouble. If accurate histories could be obtained from patients, it is probable that apoplectiform cases would be found to be more

²¹ *Beiträge zur. Klein. Chir.* 1895, xiv page 137.

²² *Neurologisches Centralblatt*, April, 1896.

numerous than now appears. The most common clinical picture is hemiatrophy with greater or less change in the electrical response of the muscles, and with palsy of the palate and larynx on the same side accompanied by fibrillary twitching. Very often there is persistent head pain in the occiput on the corresponding side, and this seems to be more apt to occur and to be more severe in cases in which the lesion is not within the medulla, and hence is of some slight value in making the diagnosis of locality. The accompanying symptoms may be much more widespread than those mentioned above. Thus there may be wasting of the muscles supplied by the spinal portion of the spinal accessory and of the arm, and indeed, as in one case, the hemiatrophy may be only the remainder of a wasting which has affected to some degree all four extremities. If the lesion is within the medulla since it will be above the crossing of the pyramids, there may be hemiplegia upon the side opposite the hemiatrophy. There may be symptoms referable to the heart and lungs, due to implication of the pneumogastric. The ocular symptoms which sometimes occur, are a complication due either to an independent nuclear lesion or the extension of a meningitis, say rather than a part of the natural course of the affection.

The most frequent predisposing cause probably is syphilis. It probably will be proven in the future that the poisons of the acute infectious fevers, as for example, scarlet fever, are occasional factors in causation, but thus far a sufficient number of cases have not been studied with regard to this to warrant any positive statement. It is curious that it is not often found in diphtheritic palsy. The influence of lead is still in dispute. The affection may of course, occur in childhood or old age, but is most frequent in mature life. The diagnosis of the existence of hemiatrophy can be made without any difficulty. It can scarcely be confounded with progressive facial hemiatrophy in which there is occasionally implication of one-half of the tongue. Acute hemiglossitis needs only to be remembered for the differential diagnosis to be clear. The diagnosis of the immediate cause and the exact pathological condition is never easy, and may be impossible. It can only be made by a study of the accompanying symptoms. I must thank Dr. J. H. W. Rhein for his assistance in reviewing the literature.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, May 5, 1896.

B. SACHS, M.D., President.

ALCOHOLISM IN A CHILD OF THREE YEARS.

Dr. C. A. HERTER presented a child of three years who had been admitted to the Babies' Hospital, Dr. Holt's service, on December 13, 1895. The child had been accustomed to take more or less whiskey daily, but it was estimated that previous to admission he had taken at one time at least twelve ounces of pure whiskey. Shortly after this the child fell to the floor and remained in a stupor for fourteen hours. He laughed and sung, and dozed by turns for a number of hours; and then had a series of convulsions. He remained in a partially drowsy state for about a week. When admitted to the hospital, seventeen days after having taken the whiskey, examination showed that both pupils responded to light; there was apparent loss of sensation over both upper extremities; the feet were cold; the left leg was spastic; the extensor longus pollicis was tightly contracted, lifting the great toe nearly to a right-angle, the pulse was 150 and the temperature 99.5° F. On the following day, December 14, he vomited everything; the pulse was 160 and regular; respirations were 32; the abdomen was not retracted; the liver was below the lower border of the ribs. He lay most of the time in a semi-stupor. During the previous night there had been a convulsion. During the next few days he had convulsions at intervals, was more or less stupid, and developed rigidity and contractures of various parts, but especially on the left side. On December 24, the skin was covered with a miliaria eruption, and there were convulsions for several hours. Physical examination showed a hypostatic pneumonia. After January 2, 1896, the convulsions were less frequent, and there was not so much general rigidity. The pupils were small, unequal, and did not react to light. An ophthalmoscopic examination on January 11 showed the

edges of the disk somewhat hazy, and the vessels radiating from the disk, abnormally full. On January 23, the mental condition began to improve, but the contractures remained unchanged and there were vaso-motor disturbances, particularly flushing of the face. By February 3d, the condition of the child was bad; he was losing weight and there was considerable cough. The right arm was rigid; the wrist flexed and rigid. There was a slight return of power in the muscles of the upper extremity; the right thigh, leg and foot were moderately flexed; the left arm and forearm were very rigid; the wrist was markedly extended; the left arm was clinched and adducted; there was atrophy of the extremities; the knee-jerks were not obtainable; there was no rigidity of the neck and no strabismus. All the muscles, both of the upper and lower extremities, reacted fairly well to galvanism. He continued to lose weight up to March 2d, when he weighed five pounds twelve ounces less than on admission. By March 18th there was some power of speech recovered. By April 6th he could move the arms and legs, but could not stand. By April 28th he had apparently entirely recovered; he walked well; there were no contractures; the muscles reacted well to a moderate faradic current; there was no evidence of his mental condition having been impaired. For six weeks, then, there was complete consolidation of the right lower lobe of the lung. From December 13th to February 7th there was a moderate, irregular fever. The speaker said that the most striking feature was the rapidity of recovery from this condition of extreme contraction and rigidity. He had at first thought the case to be one of convexity meningitis, or possibly an irregular form of tubercular meningitis. Against the diagnosis of cerebro spinal meningitis was the fact that there was no epidemic of this disease at the time, and that there was exceedingly slight rigidity of the muscles of the back of the neck. From a careful study of the case he felt warranted in concluding that the alcohol had been absorbed in sufficient quantity to produce an acute or a subacute meningo encephalitis.

Dr. W. M. LESZYNSKY said that some years ago he had reported a case of chronic alcoholic poisoning in a child of six years, in which there was a typical multiple neuritis of all four extremities. The child had been accustomed for a number of months previously to take quantities of beer and whiskey.

Dr. M. ALLEN STARR said that he had seen one child with typical multiple neuritis which he had considered to be of alcoholic origin, because the child had been fed regularly upon beer. The child had drop-wrist and drop-foot, but it presented no mental symptoms.

Dr. C. L. DANA said regarding the pathology of the condition, aside from the neuritis, that it seemed to him that in the case presented the symptoms of coma, irritation and convulsions were very analogous to those seen in cases of chronic alcoholism of adults terminating in alcoholic meningitis. In adults it was often surprising to see how severe might be the symptoms, and yet at autopsy there would be found no actual meningitic lesions. He would say positively that this child did not have at any time meningitis or encephalitis. If death had occurred, the autopsy would probably have shown considerable œdema and meningeal irritation, but no actual exudative inflammation. He thought even right-sided paralysis might occur from extensive congestion or œdema.

Dr. STIEGLITZ asked what was the condition of the kidneys in the case reported.

Dr. HERTER replied that the urine had been examined early in the course of the trouble, and on several other occasions, and had been found perfectly normal.

Dr. STIEGLITZ said that hemiplegia sometimes came on after convulsions due to hemorrhage, either on the surface or within the brain. Under those circumstances it was not surprising that the paralysis should disappear on absorption of the blood.

LOCALIZED LESION OF THE PONS.

Dr. JOSEPH COLLINS presented a little girl, four years of age, who had been well until seven months of age, at which time she had had a severe attack of diphtheria, followed by convulsions on several occasions. Six months ago she had broncho-pneumonia from which she had apparently made a fair recovery. Last December, a white speck was first noticed in the left eye, and a "drooping of the left eyelid." Two weeks later it was noticed that the eye turned toward the left side. Examination showed a moderately well nourished child; paralysis of the left facial nerve in all its branches and persistent conjugate deviation of the eye towards the right. The eyeballs could not be rotated at all to the left, but could be moved in other directions. There was no nystagmus; the pupils reacted to light and accommodation; and vision appeared to be unimpaired. The right eye could not be moved inward. There was no reaction of degeneration in the facial nerve. There was considerable general adenopathy; there were several slightly excavated scars on the body, some fissuring about the anus and a vaginal discharge. There was also some pulmonary consolidation. The knee jerks were alike on both sides and there was no spasticity. The optic nerve was perfectly normal. The child was treated for a time at the St. John's Guild Hospital by iodide of potassium and water locally applied, but with only slight improvement. At the present time there was also a paralysis of the right sixth nerve. The speaker said that the lesion must be in the left half of pons, as shown by the loss of movement of the eyeball towards the left. There was a history of tuberculosis in the family, and the condition of the lungs and the elevation of temperature would indicate at the present time the existence of a tubercular process. He would, therefore, conclude that the condition was not due to syphilis but to tuberculosis, although it was possible that there might be a mixed infection.

A FAMILY FORM OF IDIOCY, GENERALLY FATAL, ASSOCIATED WITH EARLY BLINDNESS. (AMAUROTIC FAMILY IDIOCY).

Dr. B. SACHS, in his Inaugural Address as President of the Society, discussed this subject. He said that in July, 1887, at a meeting of the American Neurological Association, he had reported a case of arrested cerebral development with special reference to its morbid pathology. The child had been normal at birth, but at the age of three months there had been a cessation of mental progress, and the limbs had become weak. Vision had been gradually lost, and after awhile the child had become marasmic. It died at the age of two years. At first the case appeared to be an isolated instance of idiocy associated with amaurosis. Four years later, another similar case occurred in the same family, and at its death, its brain presented changes identical with those found in the brain of the first child. During the past few years the importance of this disease as a family affection had grown upon him. Attention had been directed to it in various articles, but up to this time it had attracted but little notice. In 1891, a child had been brought to him who had been normal up to six months of age, and in whom there had been a cessation or retrogression of the mental and physical development. There were present idiocy, spastic paraplegia, a mere perception of light, and a decided tendency to marasmus. The mother of this child had three other children who had remained normal up to three months of age. All three had died before the age of two years. At present there was in the Montefiore Home, New York City, a child of four years, who was completely idiotic and blind. Early in childhood the blindness had first developed. A sister had also developed early blindness.

Through the kindness of Dr. H. Knapp the speaker said he had been able to review the ophthalmological literature on this subject. In 1881, in the Transactions of the Ophthalmological Society of the United Kingdom, Vol. I., Tay described a case presenting symmetrical

changes in the region of the yellow spot in each eye of an infant of twelve months. There was also weakness, but no paralysis in this case. The optic disks were at first apparently healthy, but subsequently a large white patch, having a brownish centre, appeared near the yellow spot. It did not look like a hemorrhage or a deposit of pigment, but presented rather the appearance seen in cases of embolism of the central artery of the retina. Five months later, in addition to the changes just described, the disks were found atrophic. Three similar cases had occurred in the same family. All of these had presented the same ocular symptoms, and all had died under the age of three years. In 1885, Dr. Knapp had reported on the ocular condition of one of the children already referred to by the speaker. Dr. Sachs said he had collected nineteen undoubted cases of this disease—five boys, eleven girls, and three in which the sex was not stated. Eight of these cases had come under his own notice. The first patient coming under his observation was a little girl, born at full term of healthy parents. She apparently did well up to three months of age, when she developed nystagmus, weakness and inability to use any of the muscles, and with this there was a cessation of mental growth. Dr. Knapp examined the child and found vibratory nystagmus; contracted pupils; the fovea centralis of a cherry-red color and surrounded by an intense grayish-white opacity. At a subsequent examination the child was found to be totally blind; the optic nerves were completely atrophied, and the disks perfectly white, with scarcely a trace of blood vessels. There was marked sensibility to auditory and tactile impressions. There was no evidence of inherited or acquired syphilis, or of rachitis. In the same family the next child was a healthy vigorous boy, but the third child presented exactly the same symptoms as the first, and the morbid findings in the brain were the same. Special care had been taken in rearing this child, yet there had been a cessation of mental development at the age of eight months. It had been seen by the speaker when thirteen months old. At this time, the paresis was marked and spastic. Six months later, sight and hearing had been completely lost, and at the age of twenty months—four months earlier than the first child—it died in extreme narasmus. In August, 1891, he had seen a child who at birth was said to have weighed twelve pounds. The child had been nursed, and had

done well up to six months. At thirteen months, examination showed the fontanelles open; the child unable to sit or stand or walk; the eyes divergent, but no nystagmus. Dr. Kingdon had reported a case seen by him in the Children's Hospital at Nottingham. The pupils in this case were equal, and reacted readily to light. The optic disks were clear and pale; there was no venous engorgement, and no hemorrhages. At the yellow spot, covering a space nearly twice the size of the optic papilla was a grayish-white patch, with few vessels. The fovea was of a cherry-red color. This child died when twelve months old. Six years before this, a boy in the same family had wasted away and died when two years old; and still another child born after the one here referred to, was afflicted with the same disease.

The prominent features in the cases under consideration, the speaker said, might be briefly stated as follows: (1) Cessation of mental development and idiocy at the age of a few months; (2) paresis of the greater part of the body, either flaccid or spastic; (3) the reflexes may be deficient or increased; (4) diminution of vision terminating in absolute blindness with changes in the macula and later an optic nerve atrophy; (5) marasmus and a fatal termination at about two years of age; and (6) the occurrence of the affection in several members of the same family. Nystagmus, strabismus, and hyperacuity of hearing had been observed in most of the cases.

Out of the nineteen recorded cases, the same ophthalmoscopic appearances had been found in fourteen; hence these changes were the most important of all the signs. Post mortem examinations in these cases showed no evidence of any previous encephalitic process, and no proliferation in the walls of the blood vessels. The most marked changes were in the pyramidal cells of the cortex. In another case there were certain areas of degeneration found in the cord, the exact nature of which had not been determined. Clinical observation indicated that the primary etiological factors were, marked neurotic taint, blood relationship of the parents and traumatism in the mother during pregnancy. The condition had been so far almost exclusively observed among the Hebrews. In no case had there been any evidence of syphilitic taint. Dr. Sachs said that "agenesis corticalis" would seem to be a fitting term to describe

this condition, but possibly a more generally useful one in the present state of our knowledge would be "amaur-otic family idiocy."

Dr. KOLLER: I have listened with profound interest to the paper of Dr. Sachs, describing this apparently typical disease. I had communicated to him the two cases which I had observed but had failed to connect them with those described by Warren, Tay, Kingdon, Goldzieher, Magnus, Wadsworth, and Knapp. Indeed they present many features that would justify their being incorporated in this group, in fact the similarity over-balances the differences, which nevertheless exist.

On June 18, 1894, Mary L., then two years old, was brought to me for examination by her mother. When the child was three months old it was noticed that she did not use her eyes as other children of that age do. There was lateral nystagmus present, which according to the history given had developed in the first few months of the child's life. The ophthalmoscopic examination, difficult on account of the floating image, showed the discs to be in a congested state; besides I find in my record the entry, that apparently there is perception of light. There was nothing that struck me as unusual in the general condition of the child. The case was considered by me to be one of optic neuritis from an unknown cause. I did not see the child again until two years later, when an almost identical condition in an infant sister came under my observation, excited my interest and caused me to re-examine the first child. The general conditions of muscular debility and dementia had meanwhile developed or progressed as described by Dr. Sachs. At this examination I entered "Apparently perception of light, as child turns towards gas flame. Lateral nystagmus, not constant. Pupils of medium width, become slowly narrower when turning towards window, no prompt reaction. Both discs yellowish, discolored, present the conditions of atrophy as observed in retinitis pigmentosa. Veins dilated, arteries thinner. Dilated condition of veins may be due to gorging by screaming and struggling of the child while being held for examination. A more recent examination by Dr. Koller revealed the following condition:

Discs atrophic; yellowish discoloration similar to appearance in retinitis pigmentosa. Retina atrophic; very thin chorioidal vessel visible through retina. In the region of the yellow spot a slight veil-like milky-

blue opacity, gradually fading into the surrounding retina. In the centre of this opacity, at the site of the fovea centralis, a cherry-red patch, not very dark, a little smaller than the papilla, with ill-defined outlines.

On January 8, 1896, the infant sister, Hattie L., was presented for examination. The child was two months old, had lateral nystagmus. The mother thought the child was blind, but agreed with me that perception of light was present. The pupils of medium width, become slowly narrower when exposed to strong light. Both these children have been found to exhibit changes in the region of the macula, similar to those observed in the cases described by other oculists.

Dr. W. A. HOLDEN said that he had carefully examined one of the cases on record—that reported by Dr. Carter. The peculiar appearance about the macula and the progressive white atrophy of the disk would certainly attract the attention of the ophthalmologist. The appearance was exactly that seen in cases of stoppage of the arterial circulation of the retina when there is general oedema. It was hard to explain the appearance presented.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, April 27th, 1896.

President, Dr. CHARLES K. MILLS, in the chair.

A CASE OF ASTASIA ABASIA.

By AGUSTUS A. ESHNER, M.D.,

Professor of Clinical Medicine in the Philadelphia Polyclinic; Physician to the Philadelphia Hospital.

Asatsia abasia may be accepted as a convenient designation for a clinical condition characterized by inability to stand or to walk, but not dependent upon actual paralysis. Blocq (*"d Revue generale de Clinique at de Therapeutique"* 1889, No. 11, p. 165) proposed the explanation that patients thus affected had lost the memory of the specialized movements requisite for the performance of those acts. As a rule sensibility, muscular power and co-ordination are preserved, though the disorder may be associated with hysteria or organic disease of the spinal cord.

I wish to add a further case to the not very large number already contributed to the literature of the subject.

The patient was a married woman, 46 years old, who was a housewife, and whose husband was a cigar maker. She was born in Philadelphia, and her family history presented a number of interesting features. One of three of her sisters living was paralyzed for three years after taking a sea bath, and was cured by the "laying on of hands." She married four years later and never had any return of the motor disturbances. A second sister was described as "extremely nervous." Another sister was dead in consequence of "dropsy of the brain," it was supposed.

The patient had had measles, whooping cough, chicken-pox and intermittent fever in childhood, and articular rheumatism at the age of 18 years. Menstruation appeared at 15, and ceased at 41, and was unattended

with difficulty. The woman had borne an illegitimate child, which died at the age of twenty-one months of marasmus. For four months afterward she suffered from pains resembling labor pains. She admitted having lived the life of a prostitute between the years 1870 and 1872, though she was not aware that she had ever been infected with venereal disease. It was during the period named that she married. In 1871, upon the suggestion of her husband, she smoked a cigar in the hope of relieving toothache. She found that she liked the sensation and she continued to smoke cigars or a pipe until 1892, when as she reminded me, I first saw her at the Jefferson Medical College Hospital. I fail to recall the details of her condition at that time, but I believe a diagnosis of nicotinism was made.

In 1878 "speech was partially paralyzed," the disturbance having set in abruptly, and being unattended with other concomitant. For ten minutes the woman was totally unable to speak, and only with difficulty for two or three hours more. At the time of certain shocks later to be referred and under other conditions not readily defined, such as bad weather, and when the patient speaks rapidly, speech becomes somewhat thick.

In 1887 the patient fell upon the ice, striking the sacral region. Improvement followed local applications. Later she fell again, striking the same place. Some of her present symptoms followed an attack of influenza in 1890.

In 1892 the patient lived in a damp, moldy house for three weeks, and suffered from cough, together with numbness of the feet, which gradually extended upward to the level of the stomach. Upon change of residence the sensation descended, and finally disappeared. Later, however, there were present for a time girdle sense and numbness of the toes. The woman then passed through a period of nine months quite free from all symptoms.

In 1893 the patient observed that contact of the hands with cold water and exposure to drafts of air would cause her to fall. Already in 1892 with the numbness in the toes there had been difficulty in walking, which has grown progressively worse, and in the past two years the patient has been unable to walk alone and without support. She has also at times a peculiar sensation, compared to pinching, referred to the umbilical region, and which both she and her husband were fearful was due to the presence in the stomach of some ani-

mal swallowed in drink. A similar sensation is referred to the nape of the neck when the hands are put in cold water or the patient is exposed to a draft of air. Irregularly the patient complains of icy coldness of the feet, extending half way up the legs, and at times of a sense of burning in the same parts. She is, as a rule, obstinately constipated, and has noticed a new symptom this year. She cannot distinguish between the desire to defecate and that to urinate, that is she may feel a desire to evacuate the bowels and may only pass water, and vice versa. She thinks the rectal and vesical sphincters weak. Digestion is poor. In the past year sneezing induces a sense of chilliness. The appetite is fairly good. The tongue is slightly coated and dry. The teeth are stained black. Sleep is good and refreshing. Rarely there is headache, which when present is supraorbital and vertical. Occasionally there is vertigo. On inclining the body forward and flexing the trunk after meals, vomiting results. Sometimes, it was reported, food returns without entering the stomach. The patient is annoyed by a sense of the presence of hair in the throat. She has never had a convulsion or lost consciousness. She suffers a good deal from flatulence, which sometimes precedes a diarrheal discharge.

The patient appears quite unable to walk unsupported. When asked to make the attempt she throws her arms about her rather inordinately, and sways upon her feet. She is unable to stand at all with her feet together. She maintains that the right leg felt heavy. She can walk up and down stairs with the aid of the banister. She volunteers the information that she does not fall when her feet are warm, and also that she does not topple over in her own room. The knee-jerks were greatly exaggerated, and upon the right, ankle clonus was represented by a few contractions of the foot upon flexion. So far as can be determined there is no other derangement of mobility, and the muscles used in walking and standing possess the power of performing other acts. Sensibility appears to be generally preserved. The right pupil is a little smaller than the left; both are regular and react to light. The patient is rather pallid and of poor ambition.

With great preciseness the patient related, as she did all the details of her case, that she had suffered from three shocks, one on January 30, 1894, in which she lay helpless, though conscious, for half an hour; a second on

January 1, 1895, in which the same condition persisted for an hour and a half; and a third on February 10, 1896, lasting for ten hours. She subsequently recalled that she had had a fourth attack on February 15, 1896, lasting for twenty hours. The patient has also at different times passed unusual substances from the bowels, on one occasion what she describes as a kind of tube; on others small white bodies looking like eggs, also hairs; again something resembling a small animal supplied with many feet; on still another occasion something having a white head and black eye. Two specimens of such substances submitted to me as having been passed respectively November 20, 1894, and March 29, 1896, presented gross and microscopic appearances of vegetable fiber.

After taking a pill of aloes and asafetida for several days the patient found that she always fell backward whenever she approached a receptacle containing water. She pointed out a small spot, as large as a pinhead, upon the left ear which for two or three months has from time to time been the seat of intense burning. She stated further that a sister with whom she slept for a time had suffered from cold feet, and she wondered if she might not have derived the coldness of her own feet from that circumstance.

The patient is extremely detailed in her account of herself, and in this she is ably supported by her husband, who supplements by suggestion or otherwise such facts as the patient herself may have failed to mention. At times they may differ in their respective versions, but altogether they are quite in accord.

The case impresses itself upon me as clearly an hysterical one, all of the symptoms and attendant circumstances, including the family history, supporting such a view. It must none the less be viewed with a good deal of seriousness, and the prognosis must be guarded. If the patient could be removed from her present surroundings, if the current of her life could be entirely changed, the prospect might be more hopeful. This case and allied ones cannot be viewed as a manifestation of merely functional disturbances. It is far more probable that there have taken place nutritional changes which become more and more pronounced with the progress of the case, and which in time may lead to structural alterations. When only the nutrition of the nervous system suffers the prognosis is good under favor-

able conditions, but when changes in structure have resulted, permanent and perfect cure is beyond the range of hope.

DISCUSSION.

Dr. FRANCIS X. DERGUM.—I would inquire to what extent the ordinary hysterical stigmata are present in this case. Is there infra-mammary or ovarian tenderness? Has there been hysterical hemiamæsthesia? Is there any reversal of the color fields?

Dr. A. A. ESHNER.—This case displays very few of the distinctive stigmata of hysteria, but in its general make-up and in the clinical picture that it presents, as a whole it impresses itself on me as distinctly hysterical. The family history and the previous occurrence in the patient of aphonia, are, besides, not without significance.

Referring to the larger question as to the presence of hysterical stigmata in this group of cases, I may say that in 1891 Knapp¹ reported a collection of fifty cases of astasia-abasia to the American Neurological Association, a large number of which (21), were associated with hysteria, and in a considerable proportion of these distinct hysterical stigmata were present. It is recognized that the syndrome covered by the designation astasia-abasia may occur in conditions other than hysterical—in association with organic as well as functional disease. The case that Knapp himself reports presented symptoms of paralysis agitans, although free from tremor. The first impression was that the case was one simply of astasia-abasia, but subsequently the conclusion was reached that this manifestation may merely have represented a symptom of paralysis agitans.

¹JOURNAL OF NERVOUS AND MENTAL DISEASES, 1891, No. 11, p. 673.

A CASE OF ELECTRICAL CHOREA.

By AUGUSTUS A. ESHNER, M.D.,

Professor of Clinical Medicine in the Philadelphia Polyclinic ; Physician to the
Philadelphia Hospital.

The case of electrical chorea that I shall herewith report does not belong to the type of disease described by Dubini in 1846 (1 Ann. Univ. di Med. cxvii, p. 5). It represents rather a form of myoclonus in which the contractions occur at irregular intervals, and are shock-like in character, resembling those induced by the interrupted electrical current. These peculiarities seem to distinguish the affection from the ordinary type of chorea, and there is nothing to suggest an hysterical origin. Of the thirty eight cases reported by Dubini thirty-six proved fatal, but no appreciable lesions were found after death. Treatment seemed to be without avail. Young people between the ages of seven and twenty years especially were affected. Fright was believed to be the usual cause. Among the premonitory symptoms were sleeplessness, anorexia, and prostration. The attack proper set in with the rhythmic, shock-like contractions, usually in a given case of the same character throughout, and involving the same muscles. The movements ceased during sleep. As the case progressed the involvement became more extensive, and finally the parts affected were paralyzed. The paroxysms lasted from four to ten minutes each, and were repeated several times daily. The usual duration of the attack was from one to five or six months.

The case that I have to report is a patient under observation at the Nervous Dispensary of Howard Hospital in the service of Dr. Lewis Brinton to whose kindness I am indebted for the privilege of making this presentation. It occurs in a woman, twenty-three years old, without special neurotic family history; though there is a marked history of tuberculosis on the side of her father. The patient herself has been married, but does not live with her husband, and has been delivered of a six months dead-born child. She has had the jerk-

ing movements which she presents since the age of seven years. These are of a peculiar shock-like character and involve especially the arms and forearms, though movements can at times also be observed in the face. They are variable in intensity, ceasing entirely during sleep and being less pronounced when the patient is calm and quiet; they are also absent when the patient is walking, although a jerk occurs with the first step. The patient can knit and write with facility, jerking very little in the performance of these acts. The patient thinks the movements may have been rather less pronounced during such attacks of illness as she may have. The onset of the movements followed the fright suffered from being locked in the wardrobe. The knee-jerks are exaggerated and feeble ankle-clonus can be elicited on the left. The heart and lungs present no abnormality.

I think this case may be safely called one of chorea, though not of true Sydenham or of Dubini type. There is reason to believe that chorea, as seen in its various forms, is not a single affection and that all cases do not have a uniform pathology. We are able now to distinguish Sydenham, Huntington, Dubini, hysterical and post-hemiplegic varieties, and the future may perhaps bring us knowledge of others. The character of the symptoms suggests that the seat of the disease is the cerebral cortex, and the clinical course of cases would indicate that the functional (habit-chorea), (Sydenham's chorea, hysterical chorea), disturbance may be organic (post-hemiplegic chorea), nutritional structural (Huntington's chorea).

Dr. DAVID RIESMAN read a paper entitled

“CHOREA IN THE ADULT, WITH THE REPORT
OF A CASE IN A MAN AGED 75 YEARS.

The case was one of left-sided hemi-chorea, the arm and leg being involved, chiefly the former; there was no impairment of speech, no loss of memory or other physical symptom; the movements were not controlled by the will, but were intensified, not to a marked degree, however, by voluntary movement. The knee-jerks were absent; pupillary reactions normal. No history of rheumatism, no heart-lesion. Disease attributed to exposure to drafts. Duration, eight months. The essayist then described the various types of chorea in the adult, particularly in the aged, and discussed those cases in which neither an hereditary factor nor a gross subcortical lesion existed. Of this type he had been able, so far, to collect fifty-nine cases from the literature. A brief discussion of the treatment concluded the paper.

DISCUSSION.

Dr. WILARTON SINKLER.—The case resembles more closely those cases of extreme Huntington's chorea with athetoid movements. It is not so much like Sydenham's chorea as some cases of senile chorea that I have seen. The fact that the movements are increased by attempts at voluntary motion would make it likely that the case belongs to that class where there is some cortical lesion. The movements resemble in character those of post-hemiplegic chorea. The fact that the trouble is on one side would tend to the same view. The walk of the patient is not like that of Huntington's chorea, but more like that of athetoid state. The case is very unusual and of great interest.

Dr. WM. G. SPILLER.—The following cases occur to me in regard to the histological examination of chorea: A case is reported in the *Archiv für Psychiatric*, for 1892, by Grippin, in which the writer speaks of numerous foci of connective tissue cells. Oppenheim in collaboration

with Hoppe has published two cases, and describes multiple foci of encephalitis, but he casts doubt on these foci as the cause of the disease. Dr. Nageotte, chief of the laboratory at the Sâlpêtrière, in Prof. Raymond's clinic, has told me that he was unable to find anything by the silver method which he could consider characteristic of chorea, although he had obtained positive results for general paralysis.

Dr. DAVID RIESMAN.—I have not arrived at any definite conclusion as to the nature of this case, but cannot think that it is post-hemiplegic. There is no exaggeration of the knee jerks, no impairment of power. If the lesion were in the posterior third of the internal capsule, we might have no loss of power, but there would be sensory changes which, so far as tactile sensation is concerned, are not present. Between Huntington's or chronic progressive chorea and Sydenham's chorea that has become chronic, it is perhaps difficult to differentiate. The best test of Sydenham's chorea would be cure under arsenic. That has been tried here without benefit.

With regard to the histological changes, the question has been raised whether those which have been described were not the effect rather than the cause of the long-continued nervous affection.

A PRELIMINARY REPORT ON TWO CASES OF ELECTROCUTION

was made by Dr. JUDSON DALAND.

A report was made on

A CASE OF BILATERAL DEAFNESS FOLLOW- ING INJURY.

J. D., married, aged twenty-six years. Was well at the time of the following accident. Three years ago fell a distance of twelve feet in a boat. He was unconscious for two hours afterward. On coming to, it was noticed that he had become completely deaf. There was a slight oozing of blood from the right ear. The deafness has continued, since the accident, without change. No other symptoms were noted afterward. He does not complain of headache, has no vertigo, pupils are equal.

Examination of the Ears negative. Careful examination with the tuning-fork fails absolutely to reveal any bone conduction. Professor MacCuen Smith reports total deafness. Patient states that he can feel sudden jars but cannot hear them. A careful examination of the eye by Dr. de Schweinitz is also negative. The case is presented because of its unique character. Unilateral deafness after falls upon the head is of course not uncommon. Bilateral deafness and especially total deafness, that is absence of bone conduction is certainly very rare. It is hardly safe to venture a diagnosis as to the seat of the lesion. Double labyrinthine hemorrhage is conceivable and perhaps possible, though certainly very improbable. Extensive basil fracture is out of the question both from the history of the case as well as the entire absence of other symptoms. Is it not possible that a minute hemorrhage occurring in the neighborhood, or in the substance of the posterior quadrigeminal bodies, may account for the condition found?

DISCUSSION.

DR. WM. G. SPILLER.—The fact that there has been no facial paralysis forbids a location of the lesion in those parts in which the auditory and facial nerves lie close together. It is difficult, also, to locate it in the medulla oblongata as the auditory centres lie so near the facial, and one can hardly assume an isolated destruction of the former from traumatism. The man has ringing in his ears which at times is severe, and may sound like a distant waterfall. This has been considered as common in labyrinthine disease. Although certain important symptoms of this affection are absent, one must remember that the patient's deafness is total, and that when this condition exists the symptoms become less severe. The absence or presence of bone conduction of sound is important in locating the process in the inner or middle ear.

Dr. CHARLES M. BURR read a paper on

HEMIATROPHY OF TONGUE, WITH THE REPORT OF A CASE. (See page 458.)

DISCUSSION.

Dr. WHARTON SINKLER.—This case recalls others that I have seen. The first was under my care for several weeks. She had hemiatrophy of the tongue, and a peculiar continuous pain located in the arm of the opposite side, unsteadiness of gait and wasting of the arm and leg. There was no paralysis, but there was slight incoordination of movement. A growth was suspected, but there was no change in the eye-grounds. The patient died, and the autopsy made by Dr. Burr revealed a growth involving the pons and upper part of the medulla and affecting the hypoglossus.

The second case is that of a colored man in the Philadelphia Hospital with syringomyelia in whom the tongue hemiatrophy is very conspicuous. This is probably due to involvement of the hypoglossus nucleus.

Dr. WM. G. SPILLER.—I have a specimen given to me in Prof; Obersteiner's laboratory in Vienna from a case in which the clinical history is not known. The hypoglossal nucleus on one side is entirely destroyed, while on the other most of the cells are apparently normal, as shown by carmine, although they are perhaps less numerous. Within the degenerated nucleus is a small hemorrhage, and this points towards an infectious origin. The infectious disease of the central nervous system are frequently associated with small hemorrhages.

Dr. F. S. PEARCE.—I think that the possibility of syphilis being an etiological factor in this case is great. There were probably both central and peripheral lesions, as evidenced by manifestations in other cranial nerves. While there has been a central syphilitic change there may also have been a specific neuritis in the hypoglossal nerve of that side, which would account in large measure for the atrophy.

Adjourned.

American Psychiatry.

UNDER THE DIRECTION OF

R. M. PHELPS, A.M., M.D.,

Rochester, Minn

With the Following Collaborators:

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EDITORIAL.

Training Schools An editorial in the *American Medico-Surgical Bulletin* (March 14th, 1896) deprecates the movement of the above schools in a manner that seems to us surprising, and fully ten years behind the times. It is quite accurately the critical attitude of a decade ago. It states that the nurses are not fitted to compete with those of the City Hospitals; cannot be expected to care for a case of typhoid fever, that according to "competent authorities" there is a constant tendency "to overtrain;" that "many times the knowledge imparted to attendants in the lectures is

not unnecessary and undesirable, but also positively deleterious both in its significance and application ;" "when the duties of the average hospital attendant extend beyond bounds of gentle care and protection of the helpless insane, and move out into the broader field of neurological psychiatric and obstetrical sciences, it is alike foolish and non-essential."

It further suggests that attendants should not fritter away attention on extraneous subjects. That early education cannot be so made up, that private cases of insanity are few, that "more attention be given to the cardinal virtues of a good attendant or nurse for the mentally diseased, viz., patience, kindness, tact and skill."

As coming after the scathing criticism of hospitals of this class by S. Weir Mitchell, and the neurologists for *not* having good training schools, and those too, which shall train nurses beyond ordinary duties into the more special expert work in massage, applications of medical baths, etc., the above is indeed like an ice-cold shower bath. Personally, we would like to know who those "competent authorities" are who claim that training as nurses is *overtraining*. After fifteen years of progress on the subject it had to us seemingly just come to be about universally admitted that trained nursing incorporated the best progress of the times, and was to be finally adopted in every hospital.

If the trained nurse be not needed, why the trained physician? If the gentle care be all that is needed for one, why not in the other? In some diseases the intelligent nursing is the main thing. It has been said that in typhoid fever and pneumonia this is the main thing. Drugs have been quite powerless to stay the course before its allotted time, and the physician chiefly superintends the nursing and hygienic and precautionary procedures. If this be true in *any* physical ailment, it is most assuredly true of those physical ailments which produce the objective symptom, "insanity."

The "knowledge imparted" is "unnecessary" and "deleterious!" In what way? How? Those of us who have been working for years in this line have not noted it. "Neurological, psychiatric and obstetrical sciences" "foolish and non-essential!" Can it hurt a nurse in caring for an insane patient to know what acute mania means, to know what delusions and hallucinations mean, to know what intellect, emotions and will mean, to know where the brain is, to know of peripheral nerves and their mode of connection, to know the procedure and dangers of feeding with tube, artificial respiration, poultices, counter irritants, and many and all nursing procedures, to know all about digestion, respiration, circulation, special senses, exercise, ventilation and hygiene; to know about mechanical restraints, the use of force, the varie-

ties of work among insane, handling of violent patients, and all activities among the insane ; to be drilled in the procedures of surgery, electrical applications, gynæcological work and obstetrics. These are what make up a nurse's training, and to be useless these specific things must be useless. Yet every one is in frequent use except obstetrics. Should the assistant physicians struggle along at the thoroughly impossible task of taking fifty to one hundred temperatures a day, make all the dressings, give all the enemata, give the electrical applications, see all the baths, make all his surgical and gynæcological preparations, write all the records, catch and describe symptoms when not present, and do various things more or less impossible. The surgeon in a general hospital would not, and could not ever admit of either this or of allowing such things to be done by the untrained.

"Gentle care" all that is needed ! We had fondly thought this the way above all ways to secure gentle care. It brings the physician to see more closely to the nurse's disposition and methods, it calls for more of the good qualities on admission, or rids the school of nurses when the lack is discovered. From a personal knowledge of five years without a school, and six years with one, we would state the latter incomparably the better in grade of nurses' intelligence, in kindly care of patients, as well as in the procedures above outlined. We know full well, too, the drawbacks and difficulties of such a school.

Finally, a cautionary word as to the statement that they cannot be compared with the city-trained nurse. We submit that this is for the most part, irrelevant ; they may and they may not. We have held firmly, however, that if one does not aim to make the course equivalent to that of a city hospital, the nurses surely will never compete. If we aim at the highest grade we will at least approximate it. We may not be able to reach the topmost round at once. Our best nurses have been able to do well even among the city nurses. In the smaller cities, among less competition, they have done much. All the higher positions in our hospitals are filled by graduates, with increase of pay. And, finally, it is to be admitted, a few, though able to graduate, are yet discharged, or on our black list because of some dishonorable action or lack of ability or aptitude. This is a brief statement of the true position. We are not forcing any nurses away to outside work, nor are we training any to outside work except as their extra ability or extra ambition leads them to seek it. We really want all the best ones ourselves, yet we make our standard of study fully up as high as that of the city hospitals.

Again, about one-third of the hospitals for insane have courses of some kind, but standards vary greatly. In some it

may be doubtless a perfunctory sort of course with little care, or stimulus, or life, or ward drill. This, however, does not argue against the movement, only against the incomplete or perverted way of carrying it out. It is also a fact that hospitals for the insane are peculiar among hospitals, in keeping their incurable, chronic or partially cured cases. Much of treatment, however, is needed even among these. Even among these alone, it would be an injustice to not be allowed trained service. But the acute cases are in sufficient numbers to cement the whole in a fairly coherent whole.

ORIGINAL STUDIES AND REPORTS.

Clinical History and Autopsy Record of a Case of Mammary Cancer With Destruction of the Lung, the Subject a Terminal Dement.

Mrs. A. C. A., age 49 years, a terminal dement, was suffering from inoperable carcinoma of the right mammary gland, and during the last six months had developed the marked cachexia and emaciation characteristic of the disease. She appeared to be at all times free from pain, her appetite continued good, and though there was considerable involvement of the axillary and cervical glands, the venous circulation of the arm was not interfered with. Examination of the urine on October 4th, 1895, gave the following results: Sp.gr. 1.019, color, pale yellow; somewhat opaque in appearance, with diffused sediment. Reaction acid, no sugar, traces of albumen present; indican not increased, urea 7.10 per cent. Microscopy, a number of free leucocytes and some renal epithelium infiltrated with leucocytes.

At 3 P. M., January 30, 1896, the patient was observed to be suddenly seized with pallor and faintness, the radial pulse was absent, and the respiration embarrassed. She was seen ten minutes later by the physician, at which time she was entirely conscious, answered questions freely, and seemed to suffer no pain. The pulse was rapid and feeble, and the respirations heaving in character, although not increased in rate. Percussion over the left side of the chest elicited nothing abnormal, and over the right side posteriorly and laterally (the presence of the neoplasm precluded satisfactory examination anteriorly) gave but slightly impaired resonance. By auscultation, the respiratory sounds were faint on the right side, exaggerated on the left. There was no apparent diminution of expansion on either side. The heart was contracting imperfectly, and the valves closing only partially. The left side of the face was paralyzed, and the tongue when protruded, deviated to the right side, although speech was clear and distinct.

From the time of the onset of the attack, the patient mani-

fested some restlessness, at times having orthopnœa. The heart's action did not improve under the administration of cardiac stimulants, and at 11:20 P. M., of the same day, death ensued.

Autopsy, January 31st, twenty hours after death.

External examination: Rigor mortis was disappearing, post-mortem lividity present over dependent parts. The body was somewhat emaciated, and the lower extremities of waxy whiteness. The right mammary gland was entirely destroyed by a dense hard, nodular mass, the skin and subjacent tissues around the gland being also invaded by hard nodules, varying in size from 2 mm. to 1 cm. in diameter. The right hypochondriac region was more prominent than the left, hepatic dullness extending about 6 cm. below the border of the ribs. The antero-posterior measurement of the right side of the chest was increased, and there was some bulging laterally.

The scalp externally was free from scars; internally smooth and not inherent. The skull externally was smooth, internally roughened with well-marked depressions for sinuses and vessels. Both tables of the bone were thickened, the external especially so in the frontal region. The diploë was present in irregular patches.

The dura was increased in thickness; adherent over the vault, the sinuses full of dark blood. The cerebro-spinal fluid was increased in amount; the pia-arachnoid slightly thickened and opaque along the blood vessels and fissures.

The brain weighed 45 oz. Certain abnormalities in the convolutions and fissures were present, viz.: The Sylvian fissures were short and oblique in direction; the ascending ramus on the right side was short and had a long, anterior projection. On the left side the ascending ramus was practically absent, its place being taken by three short fissures running up into the second frontal convolution. On the left side atrophy of the brain substance uncovered the middle lobe of the insula. An embolus, 6 x 6 x 6 mm., was found 4 mm. below floor of fourth ventricle, to left of median line. The ventricles contained a small amount of clear fluid; the ependyma was thickened and opaque; also granular in the fourth ventricle. The vessels were injected. The pineal gland was atrophied, and the nuclei shrunken.

The cerebellum was pale, but not diseased; the pons and medulla shrunken and hard.

The left pleural cavity contained a small amount of clear fluid. There were no pleural adhesions on the left side. The left lung weighed 19 oz.; its entire surface was studded with nodules, some of which were umbilicated. The apex was more crepitant than base, and the lobes were adherent to each other.

The right pleural cavity was completely filled with

partially organized adhesions, gelatinous matter, and 2,500 cc. clear fluid. The trabeculæ formed saccules, in which the fluid was encysted, considerable air being found in the meshes of the connective tissue. Only a small portion of the fibrous tissue of the right lung near the root remained.

The heart showed no abnormality; its walls were firm, but not increased in thickness. Its cavities contained dark, clotted blood, the right side being engorged.

The diaphragm above the liver was invaded by the neoplasm, and showed numerous hard nodules; the spleen, liver and omentum were normal.

The right kidney weighed 3 oz.; its capsule was not adherent; some thickening present in cortex. The same conditions were found in the left kidney, with the addition of a small cyst on the posterior surface.

The stomach and intestines were normal; the abdominal cavity contained 100 cc. of free, clear fluid.

The left ovary was nodular, and a little harder than normal; the right appeared normal; the uterus was normal in size and position, and free from adhesions; the bladder was empty,

Microscopy, chemistry and bacteriology:—

Cerebral. The psychic cells showed no moniliform degeneration, and no vacuolation. There was some coarse granulation of the angles of the cells seen at intervals. The nucleoli were somewhat large; the protoplasm of the cell somewhat clouded at best. There was a tendency for the nucleus to follow the outline of the cell, a relaxed condition, but generally clear. There was some proliferation of neuroglia nuclei around the lymph sacs, and granular detritus in the same, apparently an acute condition; blood vessels appeared healthy.

The fluid of the pleural cavity was slightly alkaline, contained a large amount of albumen, some peptone, a small quantity of starch, but no sugar; it also contained numerous granular and phantom leucocytes; a great many sporangia, greenish in color, and fragments of hyphen and mycelium were found with them. The large flakes of the fluid contained this vegetable organism and cancer cells, but mostly consisted of fibrin bands. The blue pus bacillus was present in this and the cerebro-spinal fluid, but there were no tubercle bacilli found. By inoculation on potato, agar-agar and glycerine agar-agar, the mold grew on the first and last-named media only. The neoplasm of the mammary gland was of the scirrhus form of carcinoma, and the nodules of the diaphragm were of the same character.

In reviewing the clinical history of the case, in the light of post-mortem findings, we observe:—

1st. That complete destruction of the right lung, with extensive pleurisy, was unattended by any evidence of subjective

symptoms. The patient was apparently free from pain, and always denied any discomfort until the onset of the last attack.

2d. The results of physical examination of the chest were largely at variance with the real conditions, as there was no apparent loss of mobility on the affected side; the percussion note (posteriorly) was but slightly impaired—in fact, fairly resonant; and the respiratory murmur was audible, although not distinct. The explanation of these facts seems to be found in the almost emphysematous condition of the tissues within the pleural cavity, and the communication of the respiratory motion and sounds from the left to the right side.

3d. That the nature of the process affecting the pleura and lung was cancerous, as shown by the microscopical findings.

4th. That the symptoms immediately preceding death were referable to the formation of the embolus under the floor of the fourth ventricle, and that this was also the direct cause of death. The destructive process involved the nucleus of the pneumogastric nerve, and to a limited extent that of the seventh nerve.

ABSTRACTS.

A Theory of the Causation of Permanent Dementia.

By Henry J. Berkley (*Medical News*, Nov. 9, 1895).—The gist of the article turns upon the anatomical relations between the receptive and projective end-apparatus of the psychical neurons within the cerebral cortex. According to the author the endings of the axons of all neurons are in the form of bulbs situated upon the extremity of the nerve-thread, and these lie in close relation with the side projections, or gemmulæ, of the cells. The nerve forces overleap the infinitesimal interval between the two portions of the neuron, pass through the substance of the gemmule, and thence, by the medium of the dendritic twig, onward, into the corpus of the cell.

A portion of a page is devoted to a description of the gemmule, a part of the nerve cell which is only found in perfection upon these psychical cells of the cerebrum. The shape of the gemmule is peculiar. It buds out from the lateral aspect of the basal and primordial dendrites by an almost imperceptible thread which gradually thickens for some distance, and then swells out into a spherical ending, several times the size of the stem, and upon this bulb is received the dynamic impulses from the fibres.

It is probable that the substance of the dendrites is furnished with an enveloping sheath of fine neuroglia fibres, and these insulate it. The gemmule penetrate it. The gemmulæ penetrate through the envelop, and accordingly their protoplasm is naked. On the other hand the collaterals of the

axons are furnished with a thin sheath beyond the visible myeline, and hence there is only bare protoplasm at the points of contiguity between end-apparatus of the nerve fibre and globular ending of the gemmule. Therefore, the nerve currents are not diffused through the cortex, nor are they transmitted to the protoplasm at indefinite points, but only at definite intervals as defined by the endings of the collaterals for the nerve fibres of intrinsic and extrinsic origin. Other arrangement among the closely packed and touching nerve-cell branches and endings, in the outer layer of the brain-rind, where the dendrites of the psychical cells, and endings of the axons from many sources communicate would be impossible, for the stimuli would then quite as often be aberrant as direct, and as frequently reach the wrong as the right destination.

In a number of cases of terminal dementia, and dementia from the effects of alcohol, and from other poisons that act unfavorably upon the protoplasm of the nerve cell, B. has found a disappearance of the gemmulæ, particularly those upon the promordial dendrons of the psychical cells. The disappearance of the buds may be only from the finer twigs of the apical dendron, or may extend further downward to the thicker portion, or may involve the basal dendrites. In any event the buds disappear from the diseased portions of the dendrites, and in the following manner: A local swelling of the protoplasm of of the twig, usually though not invariably, makes its appearance; the gemmulæ lose the intensity of their staining, and finally vanish one by one; and the dendrites in the intervals of the swellings, becomes reduced to a thin thread, or, when the morbid process is far advanced, to a stump. The process of tumefaction is not absolutely necessary to the death of the gemmule, as their loss, and the thinning of the protoplasmic twigs, can take place without it.

As indicated above, B. from the histological relations of the neurons, has conceived the theory that the function of the gemmule is to receive the nervous impressions from the fibre, and transmit them to the protoplasm of the dendron, and thence to the cellular body. Once the gemmulæ lose their vitality, or in any way become diseased, conduction of the nervous impulses is no longer possible, and the co-ordination of the cellular elements ceases. Confusion of thought is at first the result, then as the morbid process grows deeper and more widespread, co-ordinated thought almost entirely ceases, and a terminal dementia follows as a natural sequence. In this decadence of the mental powers it is unnecessary to suppose that all the nerve elements, from the complex relations between them by means of their axons, are necessarily degenerated.

It is not considered, for a moment, that the cell body plays an unimportant part in the progress of the deterioration; only

as the dendrites are the more delicate and sensitive to the effect of an injury from the impression of toxic or other disturbances of whatever nature, they suffer first, and afterward the degeneration of the cell-body plays a secondary, but equally important part. The axon of the nerve-cell being the most resistant portion of the nerve-unit to the effects of disease, seldom shows any material alteration during the destructive process.

NEWS AND MISCELLANY.

Report of Committee on Lunacy.
(Penn. 1894.)

The Wernersville (Pa.) Asylum seems to be trying the somewhat doubtful task of forming a hospital, by selecting only those patients in other State hospitals who will work well, who have not filthy habits, are not excitable or in any especial way troublesome. As such are distinctly chronic, this is evidently not for the ultimate mental benefit of the patients. If it is for economy it is quite possible to secure this, though probably this will be debatable. Some county asylums in Wisconsin have proven themselves able to pay their own current expenses, at least it is so reported. The Wisconsin system is eminently worthy of study by any one proposing a separation of chronic cases.

As was previously pointed out, we fail to see how one can logically or practically avoid the fact that this leaving all the untidy, violent, noisy and troublesome patients, who are chronic, in the main hospitals, only intensifies trouble there, while taking away their most resourceful workers and steady elements. We fail also to see how this can benefit the acute and curable ones remaining. "Boarding out" either to strangers, or better, back among relatives or friends, deserves study in this connection. Of course, we consider the question of acute and chronic hospitals a live, debatable question yet, but not best in this form.

Periscope.

UNDER THE DIRECTION OF
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CLINICAL.

Hysterical Pseudo-Meningitis.

This peculiar manifestation of hysteria, although scarcely mentioned in American or English literature, cannot be very rare. The writer has recently reported a case complicated with hysterical blindness (*Jour. Amer. Med. Assn.*, Feb. 8, 1896), and has since then seen an additional case.

The first patient, a servant girl, aged 30, was attacked by severe headache, and in the course of forty-eight hours became totally blind. When seen the pulse was 120; temperature, 100° F.; there was intense headache, rigidity, and tenderness back of the neck, vomiting, constipation, a foul tongue, mental hebetude, general hyperæsthesia, and increased reflexes. At the second examination, twelve hours later, a diagnosis of hysteria was made, and the symptoms rapidly disappeared under treatment by suggestion.

The second patient, a girl of 19, had a headache, vomiting, a pulse varying from 78 to 100, temperature from 99° to 101° F., pain and tenderness in the occipital and nuchal regions, photophobia and mental hebetude. She also rapidly improved under appropriate treatment.

Seven cases were recently reported in the *Société Médicale des Hôpitaux* (*La France Méd.*, Dec. 20 and 27, 1895, Jan. 3, 1896). The first, by Huchard, was a woman of 24, who first had an irregular fever, following which symptoms of meningitis suddenly appeared. There was strabismus, amaurosis and emesis, and the case was regarded as one of tubercular menin-

gitis, when she one day had a typical hysterical attack, which revealed the nature of the affection.

Comby mentioned four cases that he had observed in children, and which are fully reported in the thesis of Roesch. Two of the patients were 14 years, one was $4\frac{1}{2}$ years, and one 9 months (*sic*!) of age, and in each case he had made a diagnosis of tubercular meningitis, but the patients recovered.

He does not exclude toxæmia as a cause of some of these cases instead of hysteria, and says this *meningisme* is analogous to the *peritonisme* described by Gubler.

Gaillard reported two cases. One, a young woman, suffered from atrocious headache, pain in the epigastrium, persistent vomiting, constipation and hyperæsthesia. She exhibited the *raie meningitique* and nuchal rigidity, but there was no fever, and she rapidly recovered.

The other, a man of 26, when admitted to the hospital had "mental hebetude, prostration, gun-hammer, decubitus, *raie meningitique*, epigastric pain, vomiting, fœtid breath, anorexia, hyperæsthesia, retention of urine, constipation, but no nuchal rigidity or fever. There was nocturnal delirium, marked weakness and emaciation—a veritable marasmus." Suddenly, without apparent cause, the patient awoke, as from a dream, began to talk, took nourishment, and a rapid recovery followed.

PATRICK (Chicago).

Incomplete Acromegaly. M. Chauffard presented a patient with an acromegalic condition of incomplete character at the Soc. Méd. des Hôpitaux. Had it not been for the conspicuous enlargement of the tongue, the diagnosis must have remained in serious doubt.

The patient was a house painter, who had undergone various adventures in Madagascar and the French colonies, where he had had yellow fever, small-pox, scurvy, and other disorders. He was a hard drinker, abused tobacco, and had had two attacks of lead poisoning, once with a paralysis following. He does not appear to have had syphilis, and it is not astonishing, after this array of disorders, to learn that he was hysterical. The tongue was found swollen, soft and thickened, extending 5 centimetres and a half beyond the lower lip, with a thickness of 21 millimetres. Its enlargement occasioned various troubles, among which he reported having had attacks of strangling, but these were not seen while he was under observation. There was no hypertrophy of the limbs, nor in the pharynx. The lower jaw was prolonged, the teeth out of line; there were marked transverse ridges in the forehead; the nose was somewhat thickened; the cranium was dolicho-cephalic, with no hypertrophy of the sutures, nor of the frontal sinus. There was a slight dorsal kyphosis in the cervico-dorsal region, with a com-

pensatory curve in the lower spine. The eye symptoms were mixed. There was complete loss of vision on the left; pupilar reactions were slight. On the right there was myopia and a recent posterior staphyloma; the disc hyperæmic, with loss of retinal pigment.

There was no pathological change whatever in the limbs, and the only nervous troubles worth mentioning were frequent headache and constant desire to pass water.—*La Merc. Méd.*, July 17, 1895.
MITCHELL.

Ophthalmoplegic Migraine. In a clinic, at the Hôpital St. Antoine, M. Gilbert Ballet showed and discussed a case of the infrequent disorder, for which Charcot proposed the name of "Ophthalmoplegic Migraine." In examining the patient the most conspicuous symptom was the dropping of the right upper eye-lid and the possibility of elevating it to only a very slight degree, due to the paralysis of the levator muscle. This was found to be accompanied, on examining the eye, with paralysis of the right internal rectus, paresis of the superior and inferior recti, and a decided affection of the superior oblique; the inferior oblique and the external rectus were untouched. The result of these muscular difficulties was that the patient had a crossed lateral diplopia as well as a vertical one. The third nerve supplying also the ciliary muscle, its paralysis had resulted in a permanent dilatation of the pupil, with bad reaction to light and fixation.

The interest of the case lies rather in its development than in the condition of total ophthalmoplegia. The patient, 37 years of age, had suffered with the first attack of the same paralysis in his 14th year, and had afterwards five more, of which the one described was the last. The trouble had begun with a pain in the left supra-orbital region, which crossed to the right side after a day or two, and there remained in a somewhat more extended area, affecting the ocular, the supra-orbital and the parietal regions. In addition to these characteristic migrainous symptoms the patient suffered at first with some cardiac disturbances and with nausea—altogether like a typical hemicrania. Ordinarily in this disease the pain ceases instantly upon the appearance of the paralysis; in the present instance this was not so. When the paralysis appeared the pain was lessened, but did not go away. The mobility of the eye usually was perfect in the intervals of the attacks, though not quite so perfect between the last two.

The author has tabulated the twenty-two cases, which he believes to be all that have been recorded. The disorders from which this would have to be differentiated in practice are the occasional passing paralysis of the third nerve, sometimes seen in tabes, and a cerebral growth or a meningitis, especially

seated at the base, where it might give a paralysis of the third nerve, and even possibly a periodic one, thus closely resembling the relapsing attacks of ophthalmoplegia. In that case it would be easily distinguished by its other distinct signs of the brain-growth.—*La Méd. Mod.*, Feb., 1896.

MITCHELL.

Hysterical Spasm of the Muscles of the Trunk.

Janet (*La France Médicale*, Dec. 6, 1895,) calls attention to a symptom of hysteria that he thinks is not rare, but has not as yet been described, and which consists in a tonic spasm or contracture of part or nearly all of the trunk muscles, at times including the diaphragm. Curvature of the spine, due to hysterical contracture of the dorsal muscles, has been noted by Lannelongue, Duret, Vic, and others, but Janet alludes more particularly to an affection more acute in onset, and which may not only cause great pain and vicious attitudes, but may, according to the muscular groups involved, give rise to various respiratory or digestive disturbances, so that it may easily be mistaken for some visceral disease. Eight illustrative cases are given in detail.

Cases one and two were young men, and the affection followed an unimportant traumatism. The abdominal muscles were those principally affected, causing the patients to be "doubled-up," and making extension of the trunk impossible.

Case seven was similar. A woman, aged 32, had, following a fall, repeated attacks of hysterical narcolepsy, and a continuous lateral curvature from muscular contracture.

Cases three, four, five and eight were all pronounced hysterics. They all had recurrent attacks of more or less transient contracture, sometimes limited to a very restricted group of muscles, sometimes involving nearly the entire body. One attack is described that very closely simulated influenza or an acute pulmonary affection. There was headache, pain in the back, respiratory oppression, constant dry cough, respirations 45, the face was pale and drawn, lips dry, tongue pasty, and the patient was covered with perspiration. At the end of a week the patient's condition was scarcely changed, when careful inquiry and examination showed that the attack had followed a fit of anger, and that all the thoracic and abdominal muscles were strongly contracted and tender. The ribs were fixed, and the patient unable to yawn, sigh, or take a deep inspiration; the trunk was rigid, and the arms fixed to the sides, although the forearms and hands were freely movable. As soon as this contracture was dissipated the lumbago, dyspnoea, constipation, and other symptoms disappeared.

Case six was a girl of 19, who had become subject to hysterical attacks after an attempted violation of her person.

Her assailant had succeeded in touching the abdomen, and when examined the entire abdomen was found to be hard, contracted, and exquisitely hyperæsthetic. Respiration was purely superior costal, and the patient was unable to take a full breath. The co existing constipation, indigestion and difficult micturition were presumably due to the extreme abdominal contracture and hyperæsthesia, the slightest movement being very painful.

The author has found massage, carefully graduated, to be the best treatment, but it must be continued until no vestige of contracture remains, as such residue may be the point of departure of renewed attacks. Immediately after the cessation of the contracture there is some muscular soreness, and as long as this continues the patient must avoid quick movements which sometimes cause a return of the trouble.

PATRICK (Chicago).

Ueber eine seltene Form der alternirenden Scoliose bei Ischias.

H. Higier (*Neurologisches Centralblatt*, 1895, No. 22).—After a more or less complete summary of the observations of cases of Sciatica, in which scoliosis has been produced, and after drawing a sharp clinical picture of the author's own "Alternating Scoliosis," Higier gives the history of a case recently observed, presenting the typical features of the disease.

The patient, a tradesman of 40, fell in such a manner as to strongly flex the right thigh and leg upon the abdomen. This accident was immediately followed by acute pain in the sciatic region. Notwithstanding the pain he continued his work until he was forced to give up, and was confined to bed for three weeks. Upon arising he found that he was "crooked." The pain continued as formication or burning from the hip to the ankle joint, finally becoming so severe, with an increasing obliquity, that he was induced to consult the author.

At first sight a very marked deviation of the vertical axis of the body to the left was apparent. Although the crests of the ilium, as well as the shoulders were level, the line connecting the left spine of the ilium with the axilla was straight, while that in the right side was decidedly concave. The spinal deviation was most evident when the patient assumed the erect posture, a plumb line dropped from the head touching the outer edge of the sound heel. In sitting up, a matter of difficulty, accomplished only with the spasmodic assistance of both hands, the patient complained of a peculiar sensation of tension, localized principally from the outer surface of the thigh downwards to the ankle.

The right hip was markedly prominent, its position being retained in walking, and accompanied by a slight outward ro-

tation of the leg. The deformity of the vertebral column did not disappear on reclining. Lying on the face was impossible on account of the pain it caused. Muscular palpation was painless, but pressure at the point of exit occasioned severe pain through the entire region supplied by the sciatic nerve.

After three weeks of treatment the patient had a sudden access of pain so violent as to occasion repeated fainting, and strange to say, examinations revealed no trace of the crossde scoliosis, there being present a less accentuated, but diametrically opposed spinal aberration. Twenty-four hours later the pain had ceased and the scoliosis resumed its former character. Since then the same thing has happened on two occasions, the "homologous" form lasting respectively eighteen hours and two days.

JELLIFFE.

La Syringomyelia By R. Verhoogen and P. Vandervelde, —*Maladie Familiale*. Brussels, 1894 (Henri Lamertin, publisher, 20 Rue du Marché au Bois).

The authors report three cases of syringomyelia occurring in the same family (two sisters, one brother). The diagnosis was confirmed by autopsy in one of the cases, which presented such a similarity of symptoms that no doubt can exist as to the identity of the condition in the other two cases. The sensory and trophic disturbances predominated over the motor ones, which were most marked in the post-mortem case. The sensory anomalies differed from the common type and varied as to distribution in the three patients. In case one and two they were confined to some fingers of both hands, part of the affected areas showing complete general anæsthesia, others only analgesia, others diminished tactile and pain sense with complete loss of the sense of temperature. In case three (autopsy case), only the lower extremities (but in their whole extent) showed disturbances of sensation: marked alteration of the temperature sense (notices no difference between cold and warm bodies), tactile sense preserved but perverted (feels the friction with a brush, but does not recognize the nature of the stimulus, attributing it at times to a warm body, at times to a cold body)—painful stimuli produce the sensation of heat instead of pain.

Trophic disturbances varying in the three cases: cyanosis, glossy skin, cutaneous changes similar to scleroderma, formation of blisters, deformation of nails. In all three cases deformities of most of the joints, curvature of spinal column, unequal size and shape of the individual vertebrae (as proven in the post-mortem case). In case three gastro-intestinal disturbances.

There were muscular atrophies in all three cases, in one of them the abductor pollicis brevis muscle had disappeared altogether on both sides. In case three (autopsy) a pseudohyper-

trophy of the forearm muscles and a sclerosis of the hand muscles was found.

The microscopical examination of the cord in case three revealed a cavity (diameters of it varying between 0,144 mm. and 0,176 mm. in ventro-dorsal direction, between 0,320 mm. and 0,560 in transverse direction), situated ventrad and somewhat to the left of the central canal. This cavity is absolutely independent of the central canal and shows no ependymary lining. It can be traced through the whole length of the cord. Besides this, a sclerotic degeneration, the nerve fibres being replaced by connective tissue, is found in rather irregularly distributed areas of the posterior, lateral and anterior columns.

The authors consider the changes in the white substance to be pathogenetically identical with those of the gray substance including the cavity formation. They conclude them to be due to vascular alterations producing a sclerotic condition of the connective tissue, which in the white substance leads to degeneration of fibres, in the gray substance to the formation of cavities. The sclerosis is not confined to the nervous system, but present also in the skin, the muscles, the joints, etc., and the changes in these other organs are, in their opinion, not secondary to the alterations in the nervous system, but primary, due to a general "fibrous diathesis." The etiological origin of this "fibrous diathesis" must be sought for in the "alcoholism" and atheromatosis of both parents of the patient, which would explain the family character of the disease in the observations reported. ONUF.

Nervous Sequelæ of Grippe. *Rev. Intern. de Med. et de Chir.*, Nov. 25, 1895. Biet recounts the observed

consequences of grippe upon the nervous system in a formidable list, which includes for the brain, meningitis, meningo-encephalitis, cerebral abscesses and chronic diffuse encephalitis; for the peripheral nerves, neuralgia and neuritis, with various trophic troubles, such as atrophies, herpes, etc. In another chapter he considers the effects upon the cord and its members, meningitis, myelitis and several forms of sclerosis. When a nervous disorder of the cord, such as tabes, is already present, he finds there is an increase of the pains and an aggravation of the motor difficulty. The chronic forms of myelitis are variously affected; sometimes not at all; sometimes a new acuteness of action appears, with increased paralysis. In the fourth chapter he records the appearance of neurasthenia, hysteria, epilepsy, chorea, and exophthalmic goitre in patients who had previously shown no trace of them, and in the final chapter shows that it is possible for grippe to provoke the deliriums of feebleness, such as melancholia and hypochondriasis, of delirium with hallucinations, of dementia, and of various mental

disturbances, such as delirium tremens, delirium of persecution, etc. MITCHELL.

On Diphtheritic Paralysis, Being an Analysis of the Cases Occurring at the Eastern Hospital, Homeoton, During the Years 1892 and 1893.

By E. W. Goodall, M.D., London, Medical Superintendent of the Hospital (*Brain*, Summer and Autumn, 1895).

The patients came almost entirely from the lower classes of society. The cases, both of diphtheria and of paralysis, were consecutive. The patients were detained in the hospital six weeks and nearly all of them, especially the cases of paralysis, have again come under the writer's personal observation.

During 1892 and 1893, 1,071 cases of primary diphtheria have been under treatment in the hospital. Three hundred and sixty-two died. Of the 709 surviving patients, 125 became paralyzed (or 17.6%), seventeen of which proved fatal. The ages of the patients ranged from one to forty-two years; none were under one year of age. Most of them were under ten years of age.

The writer compares his figures with those quoted by Gowers, who states that "adults furnish a larger proportion of paralysis after diphtheria." In the patients under the writer's care the largest percentage of paralysis (22%) was furnished by children under ten years of age.

The seventh is the earliest day upon which symptoms of paralysis have been observed and the forty-ninth is the latest. Usually the membrane or exudation clears off completely before the paralytic symptoms set in, but not always.

In a large proportion of cases (66.4%) the palate alone was the first part to be affected, while either alone or in combination with some other muscles it was the first part to suffer in 74.7% of all cases.

In sixty-six of the 125 cases, that is, in 52.8%, the paralysis was limited in extent. In sixteen cases it was generalized. In none of the cases was facial paralysis, paralysis of the tongue, or of the sphincters of the bladder or rectum observed.

The writer thinks that sensory disturbances are more common than is supposed. Those most frequently met with are the sensations described as "pins and needles" in the fingers and toes, with numbness in the same parts.

The duration of paralysis varied between one and fifteen weeks, in none of the cases was any permanent paralysis left behind.

The writer does not agree with Henoch or Gowers, who say that paralysis occurs most frequently after milder attacks; his experience shows that the more severe the attack the greater

the likelihood to subsequent paralysis, as is also shown by the figures of Cadot de Gassicourt in his *Traite Clinique des Maladies de l'Enfance*. The latter also states that it is rare for the paralysis to be limited to any part other than the palate and pharynx. The experience of the writer has not been the same in this respect.

The large majority of limited paralysis terminate in recovery. Severe cases of general paralysis are usually fatal. The writer cites two severe cases of general paralysis, both of which recovered.

Henoch, De Gassicourt, Goodhart and others describe more than one class of cases of cardiac paralysis. The writer, however, thinks, that the pathology of cardiac paralysis may be different in different cases of diphtheria. He divides his cases into three classes: (1) Cases which die from heart failure during a time when exudation is still present upon the fauces and without there being any symptoms of paralysis. (2) Cases in which the patient having already become paralyzed is seized with symptoms of cardiac failure. (3) Cases in which the patient, being convalescent and having been free from membrane for some time is seized with heart failure. The cause of death in the first group of cases is rather to be sought in the immediate action of toxins on some part of the nervous mechanism, than in actual changes of a degenerative nature in the nerves or muscles. In the second group of cases, heart failure may be due to disordered innervation or to fatty changes which take place in the cardiac muscle during fevers. In the third group of cases death may be due to a degeneration of the cardiac muscle or to a degeneration of the vagus or its branches.

The symptoms usually associated with an affection of the vagus are: (1) Alteration in the action of the heart; (2) paresis or paralysis of the intrinsic muscles of the larynx and alteration in the rhythm of respiration; and (3) vomiting. The writer gives the history of a case, in which on the 16th day of the disease, ten days after the local exudation had disappeared, all the above named symptoms appeared, the child dying five days afterwards. Such cases, however, according to the writer's opinion, are very uncommon.

LOEWENKOPF.

The Nervous Manifestations of Hereditary Syphilis in Early Life.

B. Sachs. (*Am. Med. Surg. Bulletin*).
—According to the author, syphilis, whether acquired or hereditary in early life, is a very small factor in the causation of a number of well-known nervous affections of childhood. The majority of cases of infantile cerebral palsies are due to other causes than syphilis. Hereditary syphilis in children is more apt to show itself in diseases of the teeth and

bones; affections of the skin, liver, glands, etc., than in the nervous system, unless such heredity has come from a family who suffer from nervous or mental diseases.

It is stated in this paper that syphilitic disease of the nervous system in children can be recognized in the same manner as in adults, the affection usually becoming manifest in the brain and spinal cord and then only affecting a small area; as for instance, the cortex of the brain, the interpeduncular space, medulla and spinal cord; usually few symptoms are produced on account of the slight intensity of the disease at these points.

The author mentions that certain writers have attributed syphilis as the causating factor in such diseases of childhood as hydrocephalus, palsies, and encephalites. The author states that after careful study and observation, syphilis has been found to be a rare cause in these diseases.

He states that in cases of infantile palsies, where in conjunction with Dr. F. Petersen, they inquired into the histories most carefully in over 200 cases, syphilis was found to be the cause in only two cases. He calls especial attention to this point as being a contradiction to the statement of Erlenmeyer, who states that congenital syphilis is a frequent factor in the causation of such palsies. The writer explains these palsies in early life as being due to other causes than syphilis, as the difficulties encountered at times in complicated labors, the influences of acute infectious diseases, etc.

According to the author, ocular palsies which are a common manifestation of acquired syphilis in adults, may also occur at times in children, and may be the only symptom of hereditary syphilis; it may accompany hemiplegias or paraplegias due to the same cause. These paralytic disturbances of eye muscles in the young are probably due to either a thickening of the meninges and compression at the root fibres of the third, fourth, or sixth nerve, at the point of their emergence from the base of the brain, or to a special form of neuritis, affecting some and not all of the nerve fibres; also the nuclei may occasionally undergo primary degeneration, or the body may become diseased in consequence of slight hemorrhage, from certain diseased blood vessels. He states that although spinal tumors have been found in various parts of the cortex, near the aqueduct of Sylvius, in the pons, medulla and spinal cord, the condition is an extremely rare one.

There are few objective signs of cerebral syphilis, to differentiate it from other forms of cerebral disease. Among those symptoms are immobility of the eye balls and persistent headaches, which are apt to precede the onset of motor, or sensory disturbances. The writer states that the spinal affections of syphilis are manifested in early spastic paraplegias, which

are subject to recovery and relapses. Often they are accompanied with cerebral symptoms as palsies and immobility of the eye balls, pointing to an extensive cerebrospinal affection. The author describes a case of his own, and one of Freedman's, in which such symptoms were present.

According to the author, the morbid lesion, underlying, spinal syphilitic diseases consists in a thickening of the pia over a part of the central nervous system, with the formation of gummatous growths. We may have a specific endarthritis in the blood-vessels of the spinal cord as well as in the blood-vessels of the brain, and as a result of this disease in the blood-vessels, either definite areas of softening take place, or minute hæmorrhages occur.

In conclusion he states that the morbid changes in hereditary syphilis may be extensive at any given level of the central nervous system, and still be slight in intensity, with regard to symptoms presented. They are subject to great variation.

BROWN.

***Landry's Paralysis Due to a Streptococcus.*—Dr. Paul Remlinger.**

The patient, a soldier of the French army, had passed through the fatigues of the campaign of 1895 in Madagascar with no troubles except an intermittent fever contracted in November of that year, of which he had the last access in Paris the first of January, 1896; January 19th he was suddenly awakened by sharp lancinating pains in both thighs. The course of the disease was typical and acute from this moment, the patient dying January 31st. At the autopsy, twenty-eight hours after death, the liver was found enlarged and spotted with black pigment; the spleen was also enlarged and pigmented. Cultures were made from the spine in the cervical, dorsal, and lumbar regions, from which a pure culture of streptococcus developed in twenty-four hours. By way of a control experiment and to show that streptococcus had not developed during the twenty-eight hours which intervened between death and the making of the cultures, cultures were tried of blood removed from the popliteal vessels. This remained entirely sterile. However, it has probably been sufficiently demonstrated already that streptococci are not microbes which invade the tissues post-mortem. Marinesco made the pathological examination of the case. It may be mentioned that, in conjunction with Dr. Oettinger and Dr. Marie, Dr. Marinesco had already published two observations of acute ascending paralysis in which the presence of microbes had been demonstrated, appearing in the first to be streptococci and in the second anthrax bacilli. His report is brief, and only mentions that the anterior cornua contained in its lymphatic spaces small chains of streptococci. These were

not found in the interior of the nerve cells, but the large cells of the anterior cornua presented in many places ruptures of their prolongations; the lesions which had been already described in Landry's Paralysis of Ballet and Dutil.—*La Med. Mod.*, April 1, 1896. MITCHELL.

On the Topography of Zoster. Dr. Achard. It is well known that as a rule the localization of herpes zoster does not agree with distribution of the peripheral nerves, a fact which has induced Dr. Brissaud to reject the generally accepted theory of the peripheral origin of zoster, and to consider the initial lesion of this affection as seated in the posterior columns of the spinal cord, and exerting its influence on the tropic centres of the cutaneous nerves through the sensory fibres.

This view is further supported by the fact that sensory disturbances of myelic origin affect areas of the skin which do not correspond with the distribution of the cutaneous nerves. On the other hand, the theory of the peripheral origin of zoster involves the assumption of multiple lesions, disseminated by accident, as it were, in limited portions of several distinct nerves. The central theory, on the contrary, assumes the existence of disturbances which are much easier to understand, for a spinal lesion of small extent may affect in its intramyelic course the vertical and collateral branches of several neurons, belonging to different roots.

Apart therefrom from distinctly peripheral forms of zoster, such as those which follow an injury to a nerve, there are evidently others due to a special cause, viz., those in which the localization of the eruption does not correspond to the distribution of the cutaneous nerves, that is to say, in all probability the majority of cases of so-called idiopathic herpes zoster.—*Med. Week*, March 6, 1896. MITCHELL.

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AMERICAN NEUROLOGICAL ASSOCIATION.

*Twenty-second Annual Meeting, held in the hall of the College
of Physicians of Philadelphia, on June 3, 4, 5, 1896.*

The President, Dr. F. X. DERCUM, in the chair.
June 3, 1896, 10 o'clock A.M.

President's Address,

THE FUNCTIONS OF THE NEURON.

By F. X. DERCUM, M.D.,

President of the American Neurological Association.

GENTLEMEN:—My first duty this morning is a very pleasant one. It is to extend to you on behalf of my Philadelphia colleagues a cordial welcome, and in doing so I earnestly hope that this meeting, like those which have preceded it, will not only yield its quota of scientific work, but that it will draw still closer the bonds of old friendships as well as create and cement new ones. A spirit of enthusiasm for science, pure and simple, has always distinguished our Association and, at the same time, an honest friendship, a friendship not afraid of scientific criticism, has sprung up amongst us and thrives to-day as it does in few learned bodies.

Our lives are so filled with the details, the incidents and the excitements of our profession that years succeed each other with great rapidity. It seems as though the memorable meeting in Boston had been held but a few

months ago, and yet an entire year has passed away. It is fitting, perhaps, that on an occasion like the present I should asked you to pause with me on the highway along which we are so hurriedly marching—should ask you to reflect and consider whether the ideas entertained by us regarding the nervous system need no modification, whether the state of our knowledge does not justify us, nay force us, to radically change some of our most fundamental conceptions of nervous action.

There has been noticeable of late years a tendency to strangely misconstrue the structure of the nervous system and to misinterpret the truths which that structure teaches. It is known, for instance, that the afferent fibres, those which convey impressions from without up to the cortex [themselves processes (axons) of peripheral neurons], terminate not in nerve cells, but in the uppermost layer, the so-called molecular layer or molecular plexus of the cortex. Here in some way the minute divisions of the afferent fibres affect the fibres of this molecular plexus. The latter are in turn in direct communication with the nerve cells of the cortex, are, in fact, themselves cell processes. These facts suggested the idea that afferent impulses are diffused through the molecular plexus without involving or affecting the nerve cells at all, and according to this interpretation the nerve cells are left out of consideration entirely in studying nervous phenomena. This view has been especially advanced by Nansen, who maintains that the old manner of view relative to the composition of the reflex arc and the physiological importance of the nerve cells can no longer be sustained, inasmuch as the cells are not in direct communication with each other, and because direct communication between the central nerve cells and the sensory or centripetal nerve fibres is equally lacking. The reflex arc is constituted, according to Nansen¹, first, by the centripetal nerve and its fibrillary ramifications passing directly into the nervous meshwork of the cortex, that is, into the molecular layer; secondly, by the propagation of the excitation through this molecular plexus; thirdly, by the transmission of stimuli to the minute lateral branches of the centrifugal or motor nerve fibres. It follows that impulses are transmitted to the superior centres without passing directly through the nerve cells. "We can admit in the same manner,"

¹ Soury, *Les Fonctions du Cerveau*, p. 316.

continues Nansen, "that the voluntary impulses emanating from the nerve fibres which emerge from the superior centres, transmit themselves directly to the centrifugal fibres of the inferior centres without passing through the nerve cells of these centres." He says, further, that it is impossible to admit that the nerve cells of the inferior centres possess a direct importance either in relation to reflex movements or to voluntary movements, and this seems to apply equally well to the nerve cells of the superior centres. This view forces us to the conclusion that the activity of the nervous system, intelligence, consciousness, etc., is seated really in a fibrillary meshwork of the cortex, the molecular layer, and has nothing to do with the nerve cells of the cortex. The latter, indeed, deprived of their psychic functions become simply "trophic" centres. They serve only for the maintaining of the nutrition of the nerve fibres and their innumerable aborescent ramifications.

This view of Nansen's has been adopted by Mills, who, in a discussion on cerebral localization at the last meeting of the Association, and also in the *Textbook on Nervous Diseases by American Authors*, has maintained this position; he holds that "impulses are conveyed from processes to processes through the entire reflex arc, through the entire length of a cortico-efferent, or a cortico afferent, projection system," without passing through nerve cells, and that "the function of the nerve-cell body is trophic;" that its "nuclei and nucleoli preside over the nutrition of the long or short fibres which pass out of or grow into them; and, further, that cells are of enormous bulk in order that they may be able to sustain these processes. In his words, "the aggregation of gray matter at various levels of the nervous system are watering and feeding places, not places for renewing nerve activity."

Certainly, this view does violence to the fundamental principle that the properties of a given tissue depend upon its cells, and that the cells are the integral parts of the tissues. Nowhere in the whole range of biology do we find a similar anomaly obtain as is implied by this view. It asserts that merely incidental structural attributes are of greater value than the individual cells, whose building up constitutes the tissue. Surely, there is here an intrinsic contradiction.

Not only upon general principles is this view untenable, subversive of all that we have hitherto learned,

but if carefully analyzed it is found to present insuperable difficulties. If it be true that a nerve fibre diffuses the energy which it conveys, in a general way, scatters it through all the fibres or nerve cell processes near which it happens to lie, it becomes impossible to explain the definite and precise actions of the nervous system, properties which are so characteristic of it. Nothing but hopeless confusion of function could result if such a thing were possible. It would mean that nerve currents course indiscriminately without relation to each other, through this network of fibres. It would mean that everything that had been done by nature to conserve and isolate nervous impulses by enclosing the nerve fibres in special sheaths of insulating material previous to their entrance into the cortex had after all no purpose, because in the end the currents are turned wildly loose into a common receptacle.

The conservation of nerve currents along cell processes, no matter how long these may be, or whether they be in the cortex or below it, is an absolute requisite. Were it not so, the various commissural and association tracts, whose existence we know of upon anatomical as well as upon physiological grounds, would assuredly be unnecessary, would have no meaning if the loose and unrestrained diffusion of nervous energy in the cortex, such as is implied by Nansen's view, were possible.

Further, such facts as we possess are directly opposed to a diffusion of nervous energy. According to Berkley² by far the larger number of the finer fibres of the cortex are medullated almost to the extremities of the end terminations. It is highly probable, Berkley maintains, "that in no instance except at the free termination is there actually such a thing as a naked axis-cylinder," and that "the conduction of the nerve-force from cell to termination and from termination to cellular protoplasm again, is only through the medium of the ending of the nerve fibre, and that there is no diffusion of the dynamic forces through the cortex, but that the action is a direct one." In this connection he further says: "To suppose for an instant that naked axis-cylinders are present in considerable numbers in the cortex is to me an impossibility, for we must necessarily suppose in such an event that in the closely packed arrangement of axons and dendrons presented by the outer portion of the pyramidal

² Medical News, Nov. 9, 1895, p. 506.

and in the molecular layer, where fibres and dendrites touch each other in all directions, the stimuli would quite as often be aberrant as direct and as frequently reach the wrong as the right destination. Naked axis-cylinders are in all likelihood a physiological impossibility in the cerebrum, for were they numerous we can suppose nothing but a constant overflow of stimuli from one cell to another, and subsequent inco-ordination, not only of thought, but also of action."

Far from lending support to the view of Nansen that the cell is to be left out of account in the consideration of nervous action, the discoveries of Golgi, Ramón y Cajal, Van Gehuchten, and others have shown exactly the reverse. They have demonstrated beyond all question that as in all other tissues the cell is the actual integral structure. The nerve cell is a cell entirely by itself. It is a cell as distinct and as self limited as any cell of any tissue with which we are acquainted. Far from being continuous through its processes with other cells, we learn that its processes nowhere fuse with other structures. Its processes are well limited, sharply defined, and bear no relation to those of other cells save that of propinquity or perhaps contact. The individuality of the nerve-cell as a morphological integer is wholly preserved.

If we grasp this idea in its full meaning, our conception of the nervous system changes profoundly. It is no longer a stringing together of telegraph wires and way-stations, but it consists of an aggregation of cell integers, each one of which does its share in the production and in the transmission of nervous energy. For instance, the impulse proceeding from a motor neuron in the cortex is transmitted by the neuron through its own protoplasmic extension (the efferent nerve fibre) to a definite aggregation of cells in the spinal cord. It communicates its energy to these cells in the spinal cord without in any way fusing with their protoplasm or their processes. In the same way the impressions that come by the various sensory paths come from peripheral neurons, those situated in the skin, in the retina, in the ear, in the taste-buds, or in the Schneiderian membrane, and are conveyed by fibres which are merely protoplasmic extensions of these peripheral neurons up to the cortex. Here in turn these fibres transmit the energy they convey to the cortical neurons without fusing with the latter or with their processes. Everywhere, and no

matter in what light we view the nervous system, the signal importance of the nerve-cell as an individual entity is strikingly apparent.

A consideration of the above facts have suggested to me the following thought: Can it be that the neuron is not an absolutely fixed morphological element? Can it be that it possesses a certain, though perhaps limited, power of movement? Realizing the practical value and the wide application of this idea, I have examined the literature to see whether a similar interpretation of nervous phenomena has occurred to others, and to gather such facts, if any, as could be brought forward in its support. I found that this thought had occurred independently to three observers, one in Germany and two in France. I found that in 1890 Rabl-Rückhard, in a short paper published in the *Neurologische Centralblatt*, had suggested the view that nerve-cells have an amœboid movement, and he also hinted briefly at the possible significance of such a fact, if true, upon our interpretation of the phenomena of hysteria. Rabl-Rückhard's ideas attracted little or no attention, and in August, 1894, without any knowledge of Rabl-Rückhard's theory, in a paper on "A Case of Hysteria of Peculiar Form," published in the *Revue de Médecine*, Lepine advanced the same view. In endeavoring to interpret the various shifting phenomena observed in his patient he advanced the idea that the neurons were capable of movement to such an extent as to enable them to vary the degree of their relation to each other. About half a year later Mathias Duval, without any knowledge of either of the views of Rabl-Rückhard or of Lepine, in a communication made to the Société de Biologie, advanced the same theory. A week later Lepine, before the same body, repeated his former arguments in its support. Curiously enough this view, so suggestive, so pregnant with possibilities, did not meet with the endorsement either of that veteran histologist Kölliker, or that other high authority, Ramón y Cajal. In a paper entitled, "Some Conjectures on the Anatomical Mechanism of Ideation, Association, and Attention," published in the *Revista de Medicina y Cirugía Practicas*, May 9, 1895, Ramón y Cajal contended that the nerve cells do not move, because (1) the terminal branches of the nerve cells of the cerebellum, of the olfactory bulb, of the acoustic ganglia, optic lobes, etc., always present the same shape and the same degree of approximation to the cell bodies irrespective of the mode of

death of the animal (chloroform, hemorrhage, curare, strychnine, etc.); (2) because the terminal nerve-branches of the retina and of the optic lobes in reptiles and batrachians presented always the same appearance, no matter whether the organs mentioned had remained in a condition of rest (the animals having been killed after remaining in darkness for a long time) or whether they had been functionally active (the animals being killed after prolonged exposure to sunlight).

While Ramón y Cajal thus opposes the theory of mobility of the neuron, he maintains, on the other hand, that the neuroglia cells possess a great degree of mobility. He points out, for instance, that the neuroglia cells of the cortex are at times stellate and at others much elongated. Their processes have numerous short, arborescent, and plumed collaterals. Two phases can be observed in them: first, a stage of contraction, in which the cell body becomes augmented while the processes become shortened and secondary branches disappear; secondly, a stage of relaxation, during which the processes of the neuroglia cells are again elongated. Ramón y Cajal maintains that the processes of the neuroglia cells in reality represent an insulating or non-conducting material, and that during the period of relaxation they penetrate between the arborizations of the nerve cells and their protoplasmic processes, and render difficult or impossible the passage of nerve currents. On the other hand, when the processes of the neuroglia cells are retracted, the various nerve cell processes which they formerly separated from each other are now permitted to come into contact. To me it seems as though Ramón y Cajal admits the very thing against which he contends. Evidently if the nerve-cell processes are not at one time in contact, and at another are in contact, they must certainly move, and the question at issue is self-admitted. It certainly does not matter whether the nerve cell processes move little or move much, but that they move at all is the question at issue; and this, it seems to me, Ramón y Cajal admits, although he makes that movement a purely passive one and dependent upon the interposition of the processes of the neuroglia corpuscles. It is certainly a minor point whether the movement of the nerve cell processes is active or passive, though it is far from evident, from the histological facts at our disposal, that the neuroglia corpuscles play the role of an insulating material. To me it further seems that a single positive

observation outweighs all negative observations, no matter how great the authority behind them, and this positive observation has actually been made. Wiedersheim³ actually saw in the living animal *leptodora hyalina*, an entomostracan, the nerve cells in the œsophageal ganglion move. The œsophageal ganglion may in one sense be regarded as the brain of the animal, inasmuch as it receives the fibres of the optic nerve, and Wiedersheim saw its cells move and change their shape. He describes the movement as slow and flowing. Certainly, this observation possesses a profound significance. Even if the animal in which the phenomena were observed is far removed from the vertebrates, it must be remembered that it is just in the lower forms that general biological truths must be sought for, and it is just in the lower forms that they have been found. I do not for a moment contend that the nerve cells of vertebrates possess a gross amœboid movement as in the œsophageal ganglion of the entomostraca, but I do contend that it is in the highest degree probable that such facts as we have, scanty though they be, are in favor of the view that a certain amount of movement does take place in the terminal portions of their processes, their dendrites and their neuraxons, although this movement is probably small in extent.

Let us turn our attention for a moment to the subject of hysteria, and let us see what a flood of light is cast upon this subject heretofore so obscure and mysterious. Let us take the simple example of an hysterical paralysis, and see how easily it is explained. The neurons of a certain area of the cortex, for instance, retract the terminal branches of the neuraxons to such an extent that the latter are no longer in contact, or sufficiently near to the neurons in the spinal cord which supply the muscles of the paralyzed part. It explains also the marvelous fact that a hysterical paralysis may at one time be so real, so genuine, as to be indistinguishable from a grossly organic paralysis, and yet the next moment upon a suggestion may absolutely disappear. This shifting of symptoms in hysteria, this sudden disappearance of paralysis or anæsthesia, can be explained by the view here advanced as it can be by no other. When power is suddenly re-established in a hysterically palsied limb, it simply means that the terminal branches of the cortical neuraxon, previously retracted, are again extended so as

³ Anatomischer Anzeiger, 1890, p. 673.

to re-establish the proper relations with the spinal neurons. Take again the example of a hysterical anæsthesia. How often do we see a segmental anæsthesia or a hemi-anæsthesia coming and going under the influence of no other stimulus than that which applies to the psychic make up of the individual, namely, a treatment which we call mental or moral treatment, or that more powerful treatment, suggestion under hypnotism. It would be interesting, indeed, to follow out the ideas here brought forward in their application to the various phenomena presented by hysteria, its sensory, motor and visceral stigmata. Even the hysterical convulsion, I contend, can be explained by the view here advanced. Time will not, however, permit more than to indicate the line of thought.

When we turn to hypnotism we can see what a ready explanation it affords for the phenomena presented. Under the fixed stare necessitated by the ordinary method of bringing about hypnosis, and under the suggestion of sleep, the neurons are thrown into certain fixed relations with each other, corresponding solely to the ocular strain and singleness of thought induced. At the same time such relations of the neurons as ordinarily bring them into true contact with the outer world are suspended, probably by retraction of cell processes. We can easily understand, in the light of the theory here advanced, how under hypnotic suggestion a hysterical paralysis disappears, or how under hypnotic suggestion anæsthesia is produced in this or that part of the body. Further, the various stages of hypnotism itself—lethargy, catalepsy, somnambulism—are all of them capable of a scientific explanation upon this theory. Hypnotic lethargy, for instance, a stage so easily produced in the majority of patients, merely signifies that so general has been the retraction of the cortical neurons from each other that not only is sleep produced, but also a stage of general motor relaxation, due to the retraction of the terminal branches of the neuraxons in the spinal cord. In hypnotic catalepsy, on the other hand, the reverse obtains. Here the relations of the cortical neurons to the spinal neurons (contact or increased proximity, whatever it may be) are established to a degree beyond that which is normal, and the consequence is an enormous general increase of muscle tonus. In somnambulism, again, certain of the neurons, especially those which stand in direct relation with the various sensory organs, form partial com-

binations with a limited number of other cortical neurons, so as to produce the various limited psychic phenomena characteristic of somnambulism, whilst the great bulk of the neurons of the cortex, the summation of whose action constitutes the ego and brings it into close relation with the outer world, have their processes retracted in sleep.

Leaving this interesting field, let us see for a moment of what enormous value this interpretation of cortical action is for normal mental phenomena. Let us take the familiar instance of normal sleep. Sleep, instead of resulting from brain anæmia, or some other apochryphal condition of the circulation, merely means that when the substance of the cortical cells has been diminished by functional activity, which diminution we have reason to infer, from the researches of Hodge³ (on the change in nerve cells in fatigue) there comes a time when the cell processes are retracted, so that the neurons no longer stand in active relation to each other. Interchange of action cannot then take place, unconsciousness follows; sleep is established. Spontaneous wakening merely means that after nutrition has reached a certain point, a point where the wasted cell has been replenished, extension of the cell processes again takes place, and interchange of active functional relations is re-established.

Numerous other ideas also suggest themselves in relation with the view here advanced. Take, for instance, a train of thought. This appears to follow purely *mechanical lines*. Thus a sequence of sound vibrations impinging upon the peripheral auditory neurons, the auditory cells, produces in them a change, which in turn affects the relations which their neuraxons bear to the auditory nuclei, and secondarily to the auditory cortical neurons. Not only are the latter affected by the impressions received from the afferent neuraxons, but they in turn react in such a way as to change their relations to each other, and the new positions assumed by them will depend largely upon the fact as to whether a similar sequence of impressions has passed through them before. If so, the old combinations will be reformed, and as a corollary, the recognition by the ego of the sounds as something heard before. From the cortical auditory centre there now pass through the general cortex a series of combinations among the neurons, also along

³ Journ. of Morphology 1892, Vol. VII., p. 95.

the oldest and best-travelled lines, so that a given sequence of musical sounds may suggest at first a familiar air, a moment later a vivid recollection of an opera once heard and seen. In this simple illustration is embraced the physiology of perception, of conception, of memory and the explanation of the very sequence of thought itself. Surely, we have here a basis upon which a rational and biological psychology can be based. If we but permit the nerve cell to retain its normal attributes, its individuality both morphological and functional, much of that mediæval darkness in which the mystery of mind is enshrouded breaks away.

NON-SUPPURATIVE ACUTE ENCEPHALITIS.

BY DR. JAMES J. PUTNAM, OF BOSTON, MASS.

(ABSTRACT.)

The writer has observed two typical cases of this disease. One of them followed an attack of influenza, and was reported in the *Boston Medical Journal*, for October 6, 1892. The second case has been observed within the last year. The patient was a boy of thirteen, seen in consultation with Dr. E. T. Drake, Franklin, N. H. He had recently had an attack of mumps, beyond which no cause for his present illness could be found. His attack began with strabismus, which was followed successively by ptosis of both eyelids and impairment of motion of the right eye due mainly to paresis of the abducens. At the same time he began to be deaf and to complain of pain in the forehead and had some fever. These symptoms increased during the next week. At times he was slightly delirious. Hemiparesis and hemiparasthesia on the left side developed themselves; deafness became almost complete, and at the time of the consultation there was ophthalmoplegia externa and interna; impairment of the power of swallowing; paresis of the lower facial muscles; and double optic neuritis. The knee-jerks and wrist-jerks were absent on both sides. So far as could be ascertained, the sensibility of the left half of the body was less than that of the right. These symptoms persisted for about a week and then began very slowly to pass away. As late as three months after the onset, however, the eyesight was still defective. Double vision was still present and traces of optic neuritis could still be made out. Moreover, epileptiform attacks of very short duration, but of frequent recurrence had begun to show themselves, though, latterly these also had begun to lessen in severity.

The history of these two cases seems to bear out the conclusion reached by Oppenheim, who has recently treated the subject in a masterly manner, that, serious as the disease seems to be in its early stages, the outcome is not unlikely to be favorable. The time is hardly

ripe for a complete discussion of the subject of non-suppurative encephalitis in general. So far as we know now there are two forms of the disease which are especially important: (1) Wernicke's poli-encephalitis, in which the gray matter of the third ventricle, the aqueduct of Sylvius, and the fourth ventricle is chiefly involved, the patient usually giving history of alcoholic excess; (2) the form of which the cases here described may be taken as a sample, to which Oppenheim very justly gives the designation of the Strümpell Leichtenstern form. Infectious diseases or some other form of organic poisoning is probably the most common cause of the cases of this type. Oppenheim has recently reported six new cases, several of which resemble, more or less, closely those reported in this paper and most of which ended in recovery.

DISCUSSION.

Dr. L. C. GRAY, of New York, asked if there was any retraction of the neck in Dr. Putnam's case. Continuing, he said: The reason I ask is that when I first graduated I discovered a book written by Elam on "Cerebria," which I believe was then out of print, and I happened to see it in an old bookstore. I think that the best macroscopic description of what we now call hemorrhagic encephalitis was given in that book, and I was very much struck by it. During my first ten years of practice I saw four or five cases, which were all fatal, and Elam states in his book that all his cases were fatal. In almost all of his cases he was fortunate enough to obtain an autopsy. It has occurred to me that probably Elam described at that time what the Germans are now describing. Certainly, there have been many cases during the last four or five years since the advent of influenza in this country that it has been impossible to classify under any other diagnosis. In many cases the diagnosis is difficult, and the prognosis has been unfavorable even when the cases have been seen to run such a sub-acute course that you might think they would get well. Many cases have been diagnosed as meningitis.

Dr. SACHS, of New York.—The recognition of this form of encephalitis constitutes a distinct advance in neurology. I have had an opportunity within the last year or two of seeing four cases in which I have made a diagnosis of primary, acute, probably hemorrhagic, encephalitis following infectious disease. Two of the cases died and two recovered, in neither of the former was I able to obtain an autopsy. The cases that recovered were hospital cases, while those that died were in private practice. One of the cases caused the same doubt in my mind that Dr. Gray has mentioned, whether it was meningitis or enceph-

alitis. The one point on which I decided that it could not be a meningitis was that although the physical symptoms, particularly the ocular palsies, and the slight retraction of the neck were present, there was no tendency to stupor or coma. There was slight vomiting, however, in this case. The disease does not make that serious impression upon one that the same number of symptoms would if they were due to meningitis. It is often a milder disease than meningitis. The special interest that attaches to it is that we are departing a little from anatomical lines when we have recognized the disease. The symptoms will vary very much; the convexity or the base may be involved or both, but not necessarily both. One of my cases that recovered is interesting for the reason that the cerebral symptoms appeared on the same day that the fever appeared. There was no period of latency or incubation between the influenza and the cerebral symptoms. These latter symptoms, slight vomiting, headache and slight retraction of the neck appeared on the very day that the other general symptoms did. The cerebral symptoms lasted for four days and then disappeared. After four weeks, there was slight ptosis and slight paralysis, but these have both disappeared, although the man is still under observation. It is on the strength of the mildness in character of the case and the rapid recovery from the symptoms that we can at times make a differential diagnosis in these cases. I think in all probability cases reported some years ago of meningitis after influenza were cases of encephalitis.

Dr. L. C. GRAY, of New York.—I should like to ask if the cases that have been fatal have been more violent in their symptoms than those that recovered. With regard to the cases being milder, if you expect them to get well on this account, you will usually be mistaken.

Dr. PUTNAM in closing the discussion, said: Replying to Dr. Gray, there was a retraction of the head in the majority of Oppenheim's cases.

With regard to making a prognosis in these cases, Oppenheim states that it is often very difficult to do this. The early occurrence of profound coma is generally an unfavorable sign, although some of the apparently worst cases have recovered. As to the question of meningitis, the signification of retraction of the head, and the symptoms referable to irritation of the cranial nerves, some very interesting problems suggest themselves. Fürbringer mentions that meningitis was present with the encephalitis in a few cases, and states that it would be difficult to differentiate between them. Possibly we are not justified in making a distinction. A great deal depends upon how much poison is absorbed, and it is not so much a question of the severity of the local lesion regarded as an inflammation. If meningitis is present, the chances are that bacteria will be rap-

idly increasing in number, so that the system will be flooded with the toxins. I do not think we know the significance of retraction of the head, but it is very certain that it has been present in some of the cases that have been considered typical cases of hemorrhagic encephalitis.

I had a case of influenza in an elderly person who subsequently presented symptoms of Jacksonian epilepsy on one side, the convulsions recurring at short intervals. At the end of three days the patient died and I assisted at the autopsy. The brain was œdematous, and here and there were areas stained yellow. By microscopical examination, I could not discover any lesion. It may be that with our more perfect methods of examination, even very slight changes might have been made out. Strümpell states that the changes are sometimes not recognizable to the naked eye.

CEREBRAL COMPLICATIONS OF RAYNAUD'S DISEASE.

(ABSTRACT.)

This was the title of a paper by Dr. William Osler, of Baltimore. After referring to the frequency with which Raynaud's disease is met with in forms of insanity, he said that in a few cases cerebral manifestations, due apparently to vascular changes similar to those which develop in the peripheral parts, had been described. In the case of a man in his wards, already reported in 1891 by Dr. H. M. Thomas, in which epileptic attacks occurred in the winter months only, in connection with local asphyxia and superficial necrosis of the ears, the patient had also hæmoglobinuria. In another case, that of a woman aged fifty-two, during a period of six years, local syncope and asphyxia occurred at intervals in the fingers and hand of the right side, sometimes with aphasia, and on several occasions with transient paralysis of the right arm and leg. In the final attack the patient died with gangrene of the right hand and arm. The case of Weiss is believed to be the only other instance in which aphasia complicated the disease. In a third patient "falling attacks" of an indefinite character occurred in a young girl, with local asphyxia between the knees and ankles of the legs.

DISCUSSION.

Dr. C. E. RIGGS said :

I would like to ask how frequently death occurs from this condition or is associated with it.

What relations have the anatomical lesions that we sometimes find in these cases with such as Bright's disease, and fatty heart?

I have been interested in this subject, because I have reported a case in which the patient had Bright's disease and also fatty heart, but did not die of either, but apparently of Raynaud's disease. This was a very puzzling case to me. The symptoms commenced in the left hand and extended ultimately to the right hand. These existed for twenty-four hours, when the patient went apparently into a condition of collapse. Syn-

chronous with this collapse, there was an extension of the condition to the legs and thighs. The patient lived twenty-four hours longer and died from exhaustion, with the mind quite clear.

Dr. OSLER, in closing the discussion on his paper, said : The cases are very rarely fatal ; of seven that I have seen only one, so far as I know, died. If, however, we make Raynaud's disease co-extensive with symmetrical gangrene, one finds the literature of the fatal cases quite voluminous. As in the remarkable instances I have reported, the patients usually die of an extension of the gangrene. In the intervals between the attacks the patients are as a rule very well.

REPORT OF A CASE OF TUMOR OF THE THALAMUS, WITH REMARKS ON THE MENTAL SYMPTOMS.

BY WALTER CHANNING, M.D.,

Brookline, Mass.

THE patient, an unmarried female, by occupation a teacher, and forty-one years of age, was admitted to my hospital for mental diseases, November 29, 1895.

Her history before admission was as follows: She was of a lively, energetic, nervous disposition, but not of neurotic heredity, and had been a successful teacher for many years. For twenty years she had had each year in June attacks of hay fever, followed by asthma. In the spring of '95 she took a variety of remedies of a certain "specialist for hay-fever," with the apparent result of checking the asthma, and improving her general health.

She has suffered from time to time from "nervous," or "sick headache," and three years ago, having overworked, she gave up teaching for eighteen months.

In September she took up her teaching in an academy, and at the end of the month stated, wrote that she was feeling especially well and enjoying her work, but the last of October, she wrote to a friend that she had completed seven, or eight weeks of the hardest class-work in her whole experience, and if she did not have a few days rest, she would "burst."

At this time when visiting some friends for a few days she was often seen to be more excitable and exhilarated than was natural to her. She made many extravagant speeches in efforts to be amusing, bought flowers, gave away presents, and spent money more freely than she could afford, or would ordinarily have done. She also talked about engaging in the work of rescuing fallen women, in an expansive kind of way.

She also had periods of depression, when she was nervous, and seemed exhausted. She complained at these times of a peculiar boring headache, back of the right

eye, which had troubled her for about six weeks and was different from anything she had ever had. Insomnia was another symptom at this time.

Her friends were impressed by her unusual actions, but accounted for them by overwork and the nervousness resulting from the headache and loss of sleep.

November 4th she returned to her school, and taught as usual for two weeks, when she again felt the need of change and went away, for two days only, however, returning to her teaching again for another week, or up to Friday, November 22nd. The next morning she went to school, thinking it was Friday, though she was repeatedly told that it was Saturday. She took her place at her desk as usual, and was much surprised and confused when her pupils did not appear.

This was apparently the first positive indication that her friends observed of mental disturbance. Having been persuaded to make them a visit, she arrived looking entirely unlike herself. Her hat was on the back of her head, her hair dishevelled, her shawl dragging half its length on the ground. She went to the supper table without arranging her hair, or paying any attention to her personal appearance; was in high spirits, very effusive in what she said, and talked in a loud and unnatural voice. She said she had not slept for a week, and complained of her head aching.

The night following she took quieting medicine, and was a little nauseated once or twice. Occasionally she spoke of her head aching, but said little about it.

The following days, until she was admitted to the hospital (Nov. 29th), she remained in bed, as she was too weak to sit up, and her left leg gave way when she tried to stand. The left arm was also noticed to be nearly useless. She was very restless in bed, continually throwing her right arm over her head, slept very little, and took almost no nourishment. Nausea occurred a few times, but not to a marked degree. Vision was supposed to be normal.

Mentally she was confused, but much exhilarated, and talked very frequently of what she thought should be done to alleviate the condition of working girls, and rescue fallen women, and she supposed herself possessed of large sums of money (the contrary being the fact), which could be used for such a purpose.

On admission to the hospital she was in a mildly exalted condition, talking somewhat disconnectedly, and

pleased and satisfied with everything about her. In bed she was restless, moving her head from side to side, throwing her right arm over her head, and rigidly folding both arms across her chest, with her hands clenched and thumbs between the first and second fingers. The pupils appeared normal, and reacted to light, but she could not follow the moving finger. The eyes were not more carefully examined because of her restless and confused condition. The tongue, which she did not extend beyond the lips, was dry with brownish coat in the middle, and whitish at the edges. Pulse 104 and temperature 98.4°. Physical examination of the chest negative. Patella reflexes slightly exaggerated and alike on both sides. Planter reflex moderate. Sensation was not carefully tested as in the early stages of the disease, it was supposed to be acute mania with sensation in general perverted, and not possible to correctly estimate. Asked if her head pained her, she said she had three kinds of headache, and often she put her hand up to her head as if it ached, but the pain was never severe and never localized. Nausea occurred so seldom that it attracted little attention. The left arm and leg could be moved very little by the patient.

Examination of the urine gave the following results: Color normal, reaction acid, specific gravity 1022, urea normal, uric acid in excess. The sediment which was moderate in amount contained a few squamous epithelial cells and many round small cells, most of which were apparently blood corpuscles, frequently arranged in clumps.

Menstruation appeared the day after admission, was scant in amount and lasted several days.

The blood count four and six days after admission was: reds, 4,804,000; whites, 12,400.

The exaltation of the patient continued for several days after entrance. She said she was writing a series of articles which would make her reputation in this or another world, and she advised the doctor to read them. Everything pleased her that was done for her, and she was very polite in expressing her gratitude. Her state of mind was always one of contentment and happiness.

She had apparent hallucinations of taste and smell, often speaking of the bad smell of the food given her and its bad taste.

A few days later (December) she responded much more slowly when addressed, often would make no re-



sponse to questions, and much of the time was semi-somnolent, or in a deep sleep.

December 12th, she was lying very quietly in bed in a semi-stupor, she could not be aroused to answer questions, but called the nurse by the name of her sister "Mollie," and could be made to look and listen, and take food by persistent effort. The arms were much of the time rigidly flexed across the chest, the left more than the right. With the right hand she spent much of the time picking at the blanket between the knees, so that she had literally worn it thread-bare at that point. The right eye was closed most of the time, though with an effort she could open it, and judging by the way she took her food could not see with that eye.

December 16th, it was noted that for two days the patient's eyes had been kept open more than before, and she had apparently noticed people who were in the room; she said, "Oh, dear!" and occasionally groaned. The contraction of the left arm was less marked.

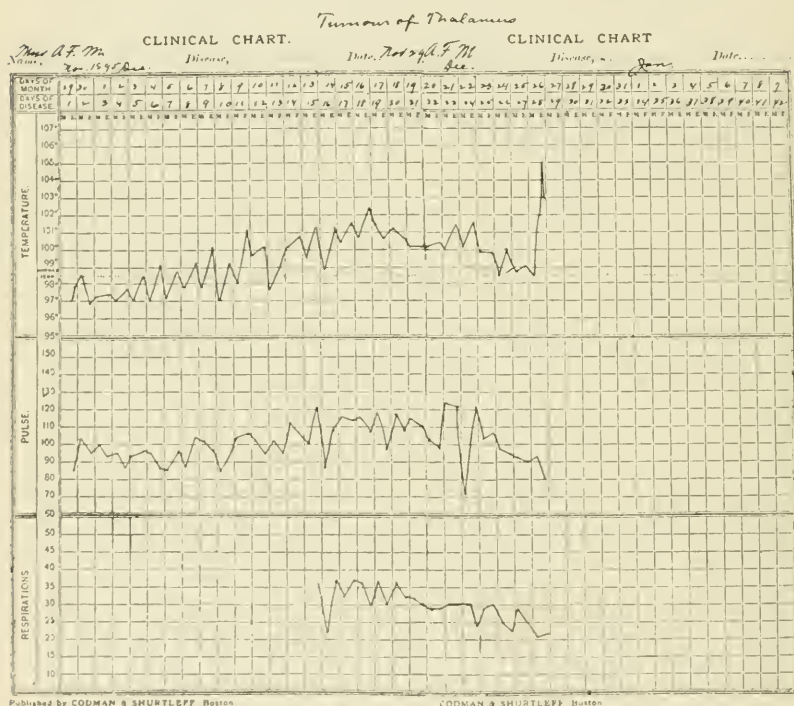
December 18th, the breathing was irregular, though not of the "Cheyne-Stokes" character. The expiration was longer than inspiration, and at times more forcible. The rigidity of the arms had disappeared and there was no more picking at the bed clothes. The right as well as the left leg she did not move.

On the 22d of December the patient was quite weak and her color bad. The pulse was irregular, changing in rate while she was lying perfectly still. One quarter of a minute it could beat at the rate of seventy, and the next quarter, perhaps, at the rate of one hundred. During the day it reached one hundred and twenty, and every time the position changed it would become immediately accelerated. The pupils varied in size during the day; sometimes the left would be more dilated than usual, and then again would be contracted, or the same changes might be observed in the right eye. The jaw began to drop, and soon was in a condition of almost complete relaxation. This interfered considerably with breathing. The legs lay straight and motionless, and the feet were in quite extreme extension.

December 25th, it was noted that the pulse and temperature had been gradually dropping, as will be seen by the appended chart. The dropping of the jaw as well as of the tongue had become more frequent and troublesome, interfering seriously with the breathing, so that there would sometimes be intervals of from six

to ten seconds between respirations. The following day the same difficulty again occurred; the breathing would stop when the jaw dropped, not to begin again until it was lifted forward. This was done repeatedly with the same result, until early on the morning of the 27th, when the breathing suddenly ceased not to begin again.

For the first two days after admission, the urine was retained; after that there was always incontinence.



There was no discharge from the bowel, the sphincter being entirely inactive.

The autopsy was made by Dr. E. Wyllis Taylor of Boston, the head only being examined. His report was as follows: "Skull rather thick, especially in the frontal region. Brain tense on palpation. Dura normal. Pia normal. No Leptomenigitis. Convolutions dry, flat, and somewhat smooth. At the base no evidence of meningitis. Pons appears somewhat flattened. On raising the temporal lobes the crura are found to be broad and

flattened and ribbon-like. On palpation there is a fluctuant sensation, which is bilateral.

On opening the right ventricle there is a boggy, cyst-like looking mass extending back an inch behind the posterior border of the optic thalamus, and forward to the junction of the caudate nucleus with the thalamus, the mass apparently involving the latter in its entire extent. (See figure.) The consistency varies in different places; in some the sensation to the fingers is that of normal tissue, in others that of cyst-like masses, apparently multiple.

The surface of the tumor (see figures) is for the most part injected, and gelatinous in appearance. The cortex is nowhere involved. The ventricles are normal in size and there is no increase of ventricular fluid."

In the report of the microscopic examination of the tumor made by Dr. Taylor sometime later, he states that "The growth consists of very numerous and rather small cells with round or oval nuclei. The cells are arranged without order. In many places the tumor is partially and completely necrotic, doubtless in a measure, at least, due to post-mortem changes. As was evident microscopically, the growth is exceedingly vascular. There are numerous new-formed vessels of large size, and many of smaller calibre, all filled with blood. Certain of the larger vessels contain thrombi, which are partially organized. In places there is considerable free blood to be seen, probably as a result of hemorrhage in the substance of the tumor. The growth is to be classed as a vascular glioma, probably of rapid growth."

Remarks.—This patient entered the hospital as a case of mild acute mania, which would probably develop and grow worse. Such was the diagnosis of the experienced alienist who had seen her, and recommended her removal to a hospital. Though mention is made in the above report of the left arm being nearly useless a few days before admission, nothing was said of this at the time, and I believe it to be an after-thought in looking back with the cause of death in mind, as the history has been obtained very recently.

The fact is undoubted that there was a plain history of at first slight exhilaration extending over some weeks, gradually increasing, and finally assuming the form of maniacal excitement with expansive delusions. The patient was put early to bed because of the weakness and exhaustion which had resulted from weeks of mental

over-activity and sleeplessness, but in bed there was an undue degree of motor restlessness, combined with the mental exhilaration, sometimes resulting in slight attacks of violence. The headache, which had been an early symptom, had almost disappeared; there was practically no nausea, and nothing unusual in the eyesight had attracted attention.

Such was the history up to admission to the hospital. During the first week there, or within three weeks of death, the mental symptoms were still prominent. The expansive delusions continued, and hallucinations of taste and smell, which made food obnoxious to her, were conspicuous.

As the physical symptoms of the brain lesion developed, the manifestation of the mental alienation grew gradually less and less, but as long as she had any power of expression the same happy, exalted underlying mental condition was apparent, a point of considerable interest. Though roused with difficulty, when she was finally aroused, even up to within twenty-four hours of death, she understood, at least, partly what was said to her, as she showed by the movements of her eyes, and her willingness to try to open her mouth and swallow food.

The mental symptoms produced in this case seem to have been quite unlike those of the usual cases of brain tumors recorded, in which are found depression, dullness, irritability, lethargy, stupor, or even pronounced dementia. It is a striking fact that up to within five weeks of death this patient was still actively pursuing her avocation of school-teaching, being at this time in a condition of over exhilaration, and having been so for weeks. Though she became confused and lost her grasp as to the relation of things, there was a tendency to mental over activity, instead of the opposite, and even to the end it seemed as if the patient would have responded to questions had her speech mechanism been unimpaired.

The first indication of cerebral disturbance to attract attention in this case, was psychical. There was the headache to be sure, and the possible ocular lesions, which might have been discovered had an ophthalmological examination been made, but the physical changes were not of a degree to interfere with the patient's activity, caused little or no inconvenience, and hence received no recognition.

Several interesting questions arise in such a case, as



for instance: Which symptoms probably first presented themselves, the mental or physical? Why should there be so much mental disturbance in such a case? Was the mental trouble an accident and independent of the tumor? If not, how can it be satisfactorily explained? What diagnostic value do mental symptoms possess in tumor of the brain?

The tumor must have grown very rapidly, and it appears to be a fact that the physical impairment was in inverse ratio to its size.

The writer thinks the criticism may be fairly made that the physical symptoms of probable tumor of the brain might have been found at an earlier period had they been carefully looked for. They existed, but were not discovered. Further, no adequate eye examination was made, which certainly was unfortunate. Recognizing fully the justice of these strictures, and regretting his lack of medical acumen, which did not put him on the right scent, it nevertheless is, he believes, true that the mental disturbance, which showed itself in this case, was unusual, both in kind and degree.

DISCUSSION.

Dr. WARTON SINKLER, of Philadelphia.—“The occurrence of mental symptoms in tumors of the thalamus is an interesting feature. A common symptom of disease in this region is somnolence, and this symptom has been regarded as a diagnostic feature, but mental disorders also occur. In a case which I reported in a paper, read before this Society two or three years ago, in which there was a large tumor occupying the thalamus, the patient had shown distinct evidences of mental aberration for some time before gross lesion of the brain was suspected. In this case there were athetoid movements in the side opposite the lesion.

Dr. CHAS. K. MILLS, of Philadelphia.—My experience indicate that cases of tumor of the brain are confused sometimes with acute mania and even with general paralysis of the insane. There are some interesting cases of this kind on record, and several have been observed at the Philadelphia Hospital. It is exceedingly difficult in many cases to distinguish between general and special psychological symptoms, as for instance, those present when the tumor is located in the pre-frontal region.

Dr. B. SACHS, of New York.—I remember having seen, at least, one case of brain tumor in which the mental symptoms predominated. The case was a child ten years of age who had developed double optic neuritis with intense headache, and

was in a condition resembling acute mania. The child remained in this condition for weeks and finally died. A tumor was found in the right frontal lobe.

Dr. THEO. DILLER, of Pittsburg, in discussing Dr. Channing's paper said I recall a case in which the very first symptoms were mental. Subsequently, however, well-marked symptoms pointing to a lesion in the cerebellum developed. I cannot wholly agree with Dr. Sachs' views on this matter, and I believe that the tumor in this case caused the symptoms by acting perhaps in disorganizing association in some way. These mental symptoms have no localizing value; for mental symptoms may occur with a tumor in any situation. The unexpected happens very often in the matter of brain tumors. I think in all organic diseases attended by cerebral or mental symptoms a thorough and exhaustive examination of the eye and eye-grounds should be included in the routine examination.

Dr. CHANNING, in closing the discussion, said: I consider my case a rare one, and I thank you gentlemen for starting the discussion. I first thought it was a case of acute mania, as it presented all the symptoms. I purposely raised the question of the mental symptoms as the coincidence is rather remarkable.

Dr. PRESTON, OF BALTIMORE, showed

A SPECIMEN OF BRAIN TUMOR.

There was a bony tumor, or rather an enormous localized thickening of the skull seemingly due to a condensing osteitis, although there was no evidence of former injury. Beneath this bony growth, but entirely unconnected with it, was a tumor, the size of an orange, occupying the anterior half of the right cerebral hemisphere. Microscopic examination of this growth showed it to be a round-celled sarcoma. The case had been under observation for six years, and the symptoms were the usual general symptoms in addition to a left hemiplegia.

Dr. HOBART A. HARE, of Philadelphia, presented a patient to the Society.

(ABSTRACT.)

The case which I beg permission to present to the Society is that of a boy, aged 17 years, who, ten years ago, received a blow upon the supraorbital ridge from a base-ball bat. This blow was sufficiently severe to knock him down and to produce free hemorrhage, but was not sufficient to produce unconsciousness. On the day following the injury he was attacked with muscular spasms which were identical with those which you see to day, and they have lasted, unchanged in their severity, until the present time. You will notice that practically all the muscles of his body and limbs and head are involved, but not simultaneously. Sometimes the muscles of the head and face, sometimes those of the trunk, sometimes those of the legs, being jerked by the constant twitching movements.

It is also noteworthy that these movements cease during intention movements, so that he is capable of carrying a lamp or a glass of water without spilling it, for any distance. At times, when the spasm attacks the muscles about the angle of the mouth, those of the neck and of the chest, he gives vent to a peculiar hissing noise which is evidently due to the sudden explosion of air from his chest through the tightly contracted lips. At first it was thought that he might be suffering from a condition of echolalia, but during the time that he has been in the Jefferson Medical College Hospital, about six weeks, he has never been known to give vent to any word involuntarily, so that the noise which he makes involuntarily is attendant upon the compression of the chest walls with expulsion of the air. The peculiarity of the twitchings of the muscles is that they are shock-like in character, resembling those seen in the frog, or any one of the lower animals, when it receives electrical shocks. For these reasons I presume that some persons would call it a case of electric chorea, but the term electric chorea is unfortunate in that the symptoms which he has in no way resemble those of true chorea. Neither

does his case resemble in any of its details the electric chorea of Dubini or of Bergeron. The possibility of its being one of myoclonus multiplex has also been thought of, but this diagnosis has been excluded for various reasons which must be apparent to you.

I have shown the case recently to Dr. Weir Mitchell, Dr. Sinkler and Dr. Dercum, all of whom agree in thinking that it is one which is difficult to classify and yet that it resembles habit spasm. The boy has about the base of his heart a murmur exactly like that heard about the chest of children suffering from chorea minor. His knee jerks are minus but not entirely absent. There has been no hypertrophy or atrophy of the muscles which seem to be affected by the spasm, and no treatment which he has undergone in the past has been of any benefit to him, although recently he has gone up to seventeen drops of Fowler's solution of arsenic three times a day. This was given to him on general principles without any very clear idea of how it could be of benefit save that arsenic does possess peculiar properties in some of these spasmodic cases.

DISCUSSION.

Dr. L. C. GRAY, New York, said he thought it was a case of convulsive tic, or palmus, and considered it very interesting, particularly as it was of traumatic origin. He suggested arsenic and bromide of potash.

I think it is a great mistake to think that because these are muscular movements they are allied to the movements of chorea. There is no more resemblance between these movements and those of chorea than there is between shaking hands with a man and knocking him down. The muscular movements of chorea are of a fibrillary type. In palmus there are movements of groups of muscles. I do not think that we should any longer retain the name of chorea for these movements, as they do not act like chorea; neither do they respond to the treatment by arsenic.

Dr. JOSEPH COLLINS, of New York, said: I agree with Dr. Gray in the diagnosis, but I do not concur in his treatment. The most valuable measure for that patient is some form of purposive movements, I would encourage him to ride a bicycle. The gentleman who presented this case let fall a very pregnant statement, when he said that during purpose movements the spasms decrease and cease. I would like to know what would do more to keep the movements still than bicycle riding. I have now under observation a case in which the pharynx,

tongue and diaphragm are involved. I am in some doubt whether it was not organic. There were as many as seventy spasms in a minute, and hypnotism resulted in reducing the spasms to one in fifteen minutes, for a short time.

Dr. G. M. HAMMOND, of New York, said: Four or five years ago I reported twelve cases, two of whom were similar to Dr. Hare's case. In one case the disease was due to traumatism and had lasted for ten years. In my experience these cases are best treated by large doses of conium in the form of the fluid extract. The efficacy of the conium is greatly augmented by combining each dose with ten or twelve grains of bromide.

Dr. OSLER, of Baltimore, said: The treatment of these cases is very unsatisfactory. They persist for years in spite of all medication. I know a case in which the condition has lasted from childhood; one, a woman, who is now fifty years of age. In the case before us the name *generalized tic* is better than simple spasmodic tic. It is important to distinguish between the expiratory noises and the explosive sounds. The noise which this boy makes is of the explosive character.

Dr. WHARTON SINKLER, of Philadelphia, said: Dr. Hare kindly gave me the opportunity of examining this boy a short time ago, and I agree with Dr. Osler, considering the case one of spasmodic tic. The fact that the affection in this case began after an injury, makes it resemble chorea, and it is still further allied to the choreas from the fact that there is a murmur at the base of the heart. Still there is no question but that the movements in this case belong to the class of tics, rather than to chorea. The case recalled to my mind one of a lamp-lighter, who had similar convulsive movements, which were violent and unexpected; and often while in the act of lighting a lamp, a spasm would occur, and he would be thrown to the ground. The prognosis in this affection is unfavorable, especially when the disease has lasted for many years.

Dr. PATRICK, of Chicago.—I was very glad to hear the general expression of opinion on this case, although the cases are not very rare. There can be no doubt as to the diagnosis, tic. But I wish to call attention to one point. Dr. Hare states that the boy is for the first time this morning carrying his head in a peculiar way, a little turned and to the side. This serves to indicate the very close relation of this affection to certain cases of spasmodic wry neck that have been called by Brissaud "*mental torticollis*." Tic is essentially a psychic disease. I have been very generally unsuccessful in the treatment of these cases. I have several times tried hypnotism with only temporary improvement, and I have tried gymnastics, also with only transient benefit. I have not tried the bicycle. That will probably be my next attempt.

Dr. B. SACHS, of New York.—I am glad that this case was so promptly diagnosticated, but it is unfair to leave the impression that these cases are to be classified among the choreas. The patient has distinct spasmodic movements and they are very different from the muscular movement of chorea, and the sooner we drop that term the better. The differentiation of these cases is extremely difficult and we owe much to Dr. Ossler for the work he has done on this subject. I have had three cases under observation, which have lasted for years and are more violent to-day than ever. There is a vast difference between these explosive sounds and the sounds of chorea. The former are in part of psychic origin and in part due to the spasms. I have recently seen a very good example of this form of tic, a man who has been arrested any number of times in New York. He assembles men about him and gives rise to all sorts of peculiar explosive utterances. The general supposition is that he is guying the crowds, but he is the unfortunate victim of the disease in question. I saw him crawling along from one railing to another recently and he could not walk without assistance. In such cases as these, it would not be wise to regard the disease as so simple that it can be cured by rest in bed or by bicycle riding.

Dr. SINKLER, of Philadelphia.—I desire to say only a word in reference to the nomenclature of this affection. Dr. Osler quite recently criticised my views on the subject of habit chorea, expressing the opinion that no such disease existed. Now, I do not mean to say that a case like that before us is one of habit chorea, but I do consider that it resembles chorea very much. What I wish to emphasize is, that I believe that we have a distinct variety of chorea, which should be called habit chorea, and which should not be confounded with habit spasm. I think that some writers have included with habit spasm, cases which are clearly choreic.

Dr. HARE in closing the discussion, said: I did not know what the case really was. These jerks are entirely different from chorea. I merely show the case as a matter of interest, as I had already shown it to Drs. Dereum, Sinkler and Mitchell. None of them thought it was a case of tic convulsif. Several gentlemen now say it is, and I do not know what to think. From a careful reading of Dr. Gray's paper, I fail to see how such a diagnosis can be made. It may be a convulsif tic, but I do not see that it comes under the head of *tic convulsif*.

Afternoon Session, June 3, 1896.

Dr. BURT G. WILDER read a paper entitled

THE ECTAL RELATIONS OF THE RIGHT AND
LEFT PARIETAL AND PAROCCIPITAL FIS-
SURES.¹

(ABSTRACT.)

The parietal and paroccipital fissures may be either completely separated by an isthmus, or apparently continuous. When so continuous ectally, there may still be an ental and concealed vadum or shadow. Disregarding the vadum on the present occasion, the ectal relations of the two fissures may be designated as either continuity or separation. That continuity occurs more frequently on the left side has been noted by Ecker, Cunningham, and the writer. Hitherto, however, statistics have included unmated hemispheres as well as mates from the same individuals. The following statement is based upon the cerebrums of 58 adults of both sexes and various nationalities and characters. The speaker has examined 48; the other ten have been accurately recorded by Bischoff, Dana, Jensen and Mills.

The four possible combinations of right and left continuity and separation occurred as follows:

I. Left continuity and right separation in 27; 46.5%.

II. Right and left continuity in 22; 38%.

III. Right and left separation in 8; 13.8%.

IV. Left separation and right continuity in 1; 1.7%.

When five groups are recognized the combinations are as follows:

A. In 8 moral and educated persons, combination I., 62.5; II., 25; III., 12.5.

B. In 23 ignorant or unknown, I., 56.5; II., 34.8; III., 8.7.

C. In 20 insane, I., 40; II., 35; III., 20; IV., 5.

¹ The title of this paper as announced upon the programme was "A Nearly Constant Difference Between the Right and Left Paroccipital Fissures."

D. In 4 murderers, I., 0; II., 75; III., 25.

E. In 3 negroes, I., 33; II., 67.

So far as these 58 individuals are concerned, the most common combination, viz., left continuity and right separation, is decidedly the rule with the moral and educated, less frequent with the ignorant and unknown, the insane and negroes, and does not occur at all in the murderers. The only instance of the reverse combination (left separation and right continuity) is an insane Swiss woman. The only two known to be left-handed presented the more frequent combination I.

These statistics suggest many special queries and problems, some of which were briefly indicated. But the speaker wished this to be regarded as a preliminary communication and asked the co-operation of other members in the effort to obtain satisfactory records of larger numbers, particularly of brains of well-born, moral and educated persons. For this purpose a blank form was outlined.

Dr. JOSEPH COLLINS, of New York, read a paper entitled

DOES ANTI-SYPHILITIC TREATMENT PREVENT THE OCCURRENCE OF THE DISEASES OF THE NERVOUS SYSTEM WHICH ARE CONSIDERED SYPHILITIC IN ORIGIN—A STATISTICAL STUDY.

(ABSTRACT.)

The reader pointed out that certain diseases of the nervous system occur sequentially to syphilis with such frequency that they are rightfully looked upon as syphilitic in their origin. These diseases are tabes, general paralysis, syphilitic spinal paralysis, and such exudative conditions as cerebral thrombosis.

On few questions is the medical profession so divided as on the curability of syphilis. Syphilographers who see the cases early, contend that the disease is a very curable one, while neurologists who see the late manifestations have quite opposite convictions. He thought that it was well to define the meaning of the word cure in the sense he wished to use it, that is, by cure we intend to convey that the disease has been put to an end by the application of remedial measures. He wished to record the results of tabulating a certain number of cases of nervous diseases of syphilitic origin which had been taken from the case books of Dr. Dana and himself, from the ambulatory material of the Post-Graduate Clinic, and from the nervous wards in the city hospitals, and determine the frequency of confessed syphilitic infection, the time during which first treatment was given, the time which had elapsed between specific infection and the appearance of the nervous disease, and particularly to decide whether or not such treatment when given with a moderate degree of thoroughness prevented the occurrence of the diseases mentioned, contrasted with cases in which there had been very little treatment.

It was his purpose not to put forth in this paper any preconceived idea concerning the curability of syphilis, nor any ideas which he might hold as regards the nature

and treatment of the diseases which were caused by syphilis, but merely to give the results of the information which the case-books gave on the points mentioned above.

In ten hospital cases, of tabes, in which there was a history of antecedent syphilis in each one, the average duration of treatment was three and one-third months, the average time elapsing between specific infection and tabes was 13 years.

In 30 private cases in which there was a history of syphilitic infection, the average age when infected was 25 years, average duration of treatment, 20 months, average time between infection and tabes, 14 years.

In 12 hospital cases taken from a different source, specific infection was admitted in 10 cases, average age of the cases when infected was 26 years, average time between syphilis and tabes $10\frac{1}{2}$ years, average age when tabes developed 40 years, average term of treatment was 7 months.

In 20 dispensary cases the average term of treatment was approximately 3 months, the average time elapsing between the initial lesion and the first symptom of tabes was about 10 years. The average age in which tabes developed was 43 years.

In 26 cases of tabes from private and public sources, in which syphilitic infection was denied, the average age of the cases when tabes developed was $42\frac{1}{2}$ years.

The age at which the disease developed in hospital cases was $40\frac{1}{2}$ years, in private cases 39 years, in dispensary cases 36 years, and in cases without history of syphilis, private and dispensary, $42\frac{1}{2}$ years.

There is practically then very little difference in these four classes of patients as to the time when the symptoms of tabes first showed themselves. In the private cases in which thorough treatment was carried out, it occurs somewhat earlier than in hospital cases where the average length of treatment was a little over three months. More striking yet than this, are the statistics of 23 cases in which there is no history of syphilitic disease.

Granting that tabes is a post-syphilitic disease, here are 23 cases in which there is no anti-syphilitic treatment, yet these are cases in which tabes did not develop until after the 42d year, the most advanced age of any of our cases.

In the records of 100 cases of tabes, 75 per cent. gave a distinct history of syphilitic infection, or such secondary

histories as would warrant even the most skeptical to include them as syphilitic.

In 25 cases of hemiplegia in which syphilis seemed to be the cause of attack, it was seen that the time elapsing between the initial lesion and the hemiplegia was about six years. Treatment which had been given at the time of the initial lesion averaged about a year. In the cases of syphilitic spinal paralysis, the average time between the infection and the nervous disease was about $4\frac{1}{2}$ years, and the average duration of anti-syphilitic treatment in these cases was 13 months. Of the 14 cases of general paresis, there was a distinct syphilitic history in all except four cases. The average duration of treatment was a year. In these cases the average time which elapsed between the primary lesion and the general paresis was 14 years.

The writer concluded as follows:

I. Exudative and degenerative diseases due to syphilis are most liable to show themselves at the end of the third and beginning of the fourth decade of life.

II. Thorough and prolonged administration of anti-syphilitic remedies during the activity of the virus does not seem to materially prolong this time limit.

III. That active and prolonged anti-syphilitic treatment does not seem to prevent the development of such diseases as locomotor ataxia or general paresis. This is true of degenerative diseases, though treatment may, however, have some effect in preventing the exudative disease of the nervous system, such as syphilis of the spinal cord, diseases of the blood vessels, etc.

IV. Cases of tabes and general paresis, in which syphilis is confessed, and in which treatment has been most desultory and incomplete, are not more liable to the early development or to the severe manifestations of either of these two diseases than those in which the treatment has been all it should be.

V. That the administration of anti-syphilitic measures in the most approved way does not fulfill the requirements of cure, and that syphilis is often an incurable disease.

DISCUSSION.

Dr. J. J. PUTNAM, of Boston, said : Single instances do not count for very much, but they count for something. I, certainly, have heard careful dermatologists say that in cases under their care, and where they had watched the patients from the

first, and had given them careful treatment, nervous manifestations of the disease had presented themselves later.

Dr. L. C. GRAY, of New York.—I have had but two opportunities of studying the facts from which the deductions are drawn, first, the facts upon which the diagnosis of syphilis was made in detail, and second, the exact treatment in detail. Any body who has kept track of the conclusions of syphilographers know that they have come to the conclusion that the diagnosis of syphilis is one of the most difficult in medicine unless they are observed by some competent person from the beginning. Even then there is considerable difference of opinion as to the value of the mercurial and the iodide treatment at different stages of the spinal and cerebral symptoms.

Dr. B. SACHS, of New York, continuing the discussion on Dr. Collins' paper, said: I think we can agree to a limited extent with the conclusions that Dr. Collins has drawn, and I am willing to do so to the extent of saying that in a very large number of cases no treatment will suffice to prevent the development of tabes or general paresis. To disprove Dr. Collins' views, it would only be necessary to take the statistics of those that have had the early manifestations of constitutional syphilis, and then note whether those who have, or have not had special treatment develop nervous symptoms later. If he could prove that anti-syphilitic treatment under these circumstances has had no effect, his conclusions would be more satisfactory. There are certain facts, however, which point indubitably to the influence of anti-syphilitic treatment. If I were to ask Dr. Collins if he would be willing to give up anti-syphilitic treatment in these cases, I do not think he would say "Yes." The most serious forms I have seen have occurred in persons who have not had any treatment. I recall a case of general paresis in a young man twenty years of age, who, while a student abroad, had contracted syphilis. Being somewhat ashamed of the fact, he would not consult anyone and received as a consequence no anti-syphilitic treatment. Within one year he developed the initial lesion and a typical state of general paresis. We see a number of cases of syphilitic spinal paralysis develop within six months of the initial lesion, particularly if the initial treatment has been unsatisfactory.

There is always some doubt about the effect of the initial treatment in these cases that are developed twenty years after the infection. I should hesitate to adopt Dr. Collins' conclusions because of the frequency of serious affections of the nervous system developing within six months or a year, in the absence of anti-syphilitic treatment. It is an unfortunate circumstance that a very fair proportion of them develop general paresis or have early apoplectic seizures.

I should be extremely careful about adopting Dr. Collins' views in toto.

Dr. KNAPP, of Boston.—In spite of Dr. Collins' statistics I should not decide to let a patient in the early stages of syphilis go without treatment. It is, of course, true that in many of the cases of syphilis of the nervous system that we see, there has been a long and thorough course of treatment, sometimes at the hands of our best syphilologists, before the outbreak of the nervous symptoms, but, in spite of such cases and in spite of these statistics, based upon a comparatively small number of cases, it is still a question whether treatment has not some value in preventing the later nervous disease. I should like to ask Dr. Collins whether, in his cases, the development of the nervous disease bore any relation to the severity of the secondary syphilitic symptoms. In very many cases of syphilis of the nervous system we can get a history of very little except the initial lesion, so that I have been led to feel that, if the secondary cutaneous and bone lesions were severe, there was less likelihood of the development of nervous symptoms.

Dr. OSLER, of Baltimore.—One speaks at a good deal of disadvantage without statistics. The impression which my experience has left is entirely opposed to the conclusion of Dr. Collins. Still, such impressions are, as you know, very apt to be erroneous. I should say that a majority of the severe cases showing the late effects of syphilis had received little or no treatment. I recently saw in one day two cases of locomotor ataxia, both presenting very similar symptoms, and both had had only the ordinary drug store treatment after their initial lesion. I am strongly of the opinion that the best guarantee for an immunity against the late effects of syphilis is a thorough, systematic, and prolonged treatment in the initial stages of the disease.

Dr. N. E. BRILL, of New York, said: I should like to ask Dr. Collins how he reconciles the fact that anti-syphilitic treatment not infrequently cures tabes and parietic dementia of syphilitic origin with the conclusion drawn from his statistics that anti-syphilitic treatment does not prevent the development of these diseases?

Dr. THEO. DILLER, of New York, in discussing Dr. Collins' paper, said: Dr. Collins studies show this: that these post-syphilitic diseases may develop in after years in spite of the most careful and proper anti-syphilitic treatment at some earlier date; they do not show the number of cases that may have been prevented by this initial anti-syphilitic treatment, and I do not see any way of getting at this. When we consider the enormous number of cases of syphilis and the small number which develop nervous symptoms, we cannot deny

that post-syphilitic nervous affections may have been frequently prevented by this treatment.

Dr. PRESTON, of Baltimore.—A point to be considered in this connection is the effect of treatment upon syphilitic endarteritis. Unquestionably a certain proportion of the chronic cord lesions following syphilis are due to syphilitic disease of the arteries and a consequent cutting off of nutrition. My own experience leads me to believe that prompt and thorough treatment of the syphilis distinctly lessens the probability of an involvement of the blood vessels. After this change in the arteries has become marked it is very unlikely that anti-syphilitic treatment is of any advantage.

Dr. HUGH T. PATRICK, of Chicago.—It would seem to me that the paper has fairly shown that the period between the initial sore and the appearance of tabes or dementia paralytica is about equal in the well- and badly-treated cases, but that is not proving that treatment has no effect in preventing these affections. In other words, when these diseases do follow syphilis, the period of incubation is uniform. They are not, strictly speaking, syphilitic, but post-syphilitic affections, and are to be sharply discriminated from syphilis. There are certainly other causative elements entering into their evolution besides specific infection and I can easily imagine that anti-syphilitic treatment might prevent their occurrence but not alter the period of incubation. Regarding the later occurrence of true syphilitic lesions, it is, as Dr. Gray has said, almost impossible to know if a patient has had proper treatment. Continued specific treatment is not necessarily adequate treatment. I have recently had a patient who received average doses of mercury from the day of appearance of the primary sore until the appearance of decided symptoms of cerebral syphilis six months later. Simply a more vigorous specific treatment caused all the symptoms to disappear as it would have prevented their appearance.

I should like to hear an expression of opinion on a point that bears directly on this question. The ordinary routine treatment of syphilis abroad, especially in Germany, is much more vigorous than in this country, but is kept up for a much shorter period, and it has seemed to me that the later manifestations of the disease as well as the post-syphilitic diseases are more frequent there than here.

PRESIDENT, Dr. F. X. DERCUM, of Philadelphia, said: It seems to me hardly fair to judge of the efficacy of anti-syphilitic treatment by selecting two diseases such as locomotor ataxia and paresis. If the inquiry were to embrace *all* forms of nervous syphilis, especially *true* nervous syphilis, I am quite sure that the result would be different. It is very instructive to learn that paresis and locomotor ataxia, diseases which occur

in syphilitic subjects so frequently are not prevented by syphilitic treatment.

Dr. J. COLLINS in closing the discussion, said: I have advanced no individual ideas nor theories; I have simply taken statistics without juggling them, and have drawn apparently warrantable conclusions. If we are not permitted to do this, of what service are our histories? What does it profit us to record cases if we are not permitted to make use of the experience thus gained. I must say that I have had a change of heart in the matter of diseases of the nervous system caused by syphilis during the last year, and particularly since I have been studying these cases. Formerly, I was fully convinced that the views advanced by Dr. Osler were correct, and I am now ready to say that I believe that I was holding an untenable view. In answer to one question I wish to say that if a patient came to me with general paresis, I know of no power that could make me administer to him large doses of mercury or iodide of potash, with the idea of combatting a remotely anterior syphilis. I am not in sympathy with the plan of taking cases of tabes and beginning a systematic administration of mercury. I am convinced, from my short experience, that this treatment does no good and often does harm. If the experience of others show that they have benefited their patients, they owe it to us to publish their views. Where the statistics are detailed, I have gone somewhat into the treatment. I am not aware that there is any great amount of discrepancy as to what constitutes the proper treatment of syphilis at the present day. I thought all those who had studied the disease had come around and consented to the belief that the proper treatment is the administration of mercury kept up from one and a half to three years. There are few who teach that the administration of iodide of potash is of any service, and it is only in the exudative condition that iodide of potash does good. It has no effect upon the treatment. I consider the cases of acute tabes and acute general paresis which have been mentioned, not as cases of true tabes, quite to the contrary. They are devoid of any of the true symptoms and are really cases of pseudo-tabes. They are associated with a slight exudative lesion in the columns of Burdach and Goll, or the posterior roots. I wish to repeat that, except in closing this discussion, I have advanced no theories or opinions, but have simply put forward the single arguments taken from my case book. After studying these cases and working them over as carefully as I could, I became convinced that the conclusions which have been given us were not those that could be backed up by real experience. I could quote individual cases where the patient had received good treatment and yet had developed lesions which are called post-syphilitic, but I do not wish to weary you. I have such cases in my mem-

ory. My experience agrees with that of Dr. Knapp in that those who have the severe tissue manifestations of syphilis are less liable to later sequelæ, while those who have had syphilitic infection mildly, frequently develop tabes and paresis. I have not considered gummata. When the pathology of the latter is understood, then I think it will be shown, as it has already been shown to my satisfaction, that the gumma is more of an acute syphilitic manifestation than a degenerative and should be amenable to mercury. If I were so unfortunate as to contract syphilis to-day, I should want mercury, but if I develop lesions which predicate previous syphilis, twenty years hence, I beg to be spared mercury.

Dr. HENRY R. STEDMAN read a paper entitled

OBSERVATIONS ON THE PROGNOSIS AND DURATION OF ATTACKS OF MENTAL DIS- EASE.

DISCUSSION.

Dr. WALTER CHANNING, of Boston said: I think we must agree with Dr. Stedman's conclusions. For many years considerable misunderstanding has existed in regard to the curability of insanity, because of statistics which have been published, especially those of Dr. Earle. The percentage of cases is considerably larger than we should be led to suppose from such statistics.

During the past fifty years it appears to me, that there has been a change in the character of the cases of mental disease admitted to hospitals. Formerly there were more cases of mania characterized by violence or excitement. We get now a steadily increasing number of degenerative cases, as contradistinguished from the cases of acquired insanity.

With a change in the type of mental disease, a change in classification becomes necessary, and I think it is time that varieties of brain disease, like general paresis, should be excluded from strict classification of insanity. They tend to lower the recovery rate, and do considerable harm in giving a misleading idea as to the curability of insanity.

Dr. L. C. GRAY, of New York.—I should look with doubt upon any statistics built up upon the assumption that insanity is an entity. It would be about as reasonable as to say that all disease is an entity, and thus go back to the Carlisle's tables of mortality for our prognosis, excluding any differences between coryza and cholera, bronchitis and tuberculosis, pneumonia and sprains. Each different type of mortality has its own prognosis, and it must appear in the mortality table. Dr. Pliny Earle's tables were made up from old statistics, and have no more application to the results of the present day than the Carlisle table of mortality would have to the results obtained by a physician informed in modern science.

Dr. C. EUGENE RIGGS read a paper entitled

PARAPLEGIA ARISING FROM HEMORRHAGE
INTO THE SPINAL CANAL, DUE TO PER-
NICIOUS ANÆMIA.

(ABSTRACT.)

Mrs. B., aged 45 years, was referred to me in September, 1895. She was paraplegic and exceedingly anæmic, the paraplegia, however, being incomplete; she could move her limbs but could not walk or stand. Her disease dated from a severe nervous shock three years previous. Her temperature during her illness fluctuated between normal and 100°. Examinations of the urine were entirely negative. Tactile sense was diminished over both lower extremities and over the trunk as high as the ensiform cartilage, being most marked over the area supplied by the anterior crural nerve. Temperature sense was normal while that of pain was diminished. Rectus clonus was present in both legs; patellar reflexes were exaggerated. There was no ataxia; no lightning pains.

The superficial reflexes were practically normal.

On October 21st the blood count showed 2,264,000 cells per cubic millimetre, representing a count of eighty squares. Hæmoglobin 30%; adherent poikilocytes, microcytes, megalocytes. November 27th another blood count showed 1,340,000 cells per cubic millimetre.

Post-mortem examination showed subject extremely white and but little emaciated. The spinal cord was removed anteriorly. Within the canal in the mid dorsal region was found a considerable extravasation of blood with a quantity of apparently serous effusion. The thorax was filled with serum, the pericardium was distended and the abdomen also contained a large quantity of serum. The blood vessels were everywhere empty and colorless. The heart was pale and flabby with a small clot of blood in each ventricle; the liver was enlarged; the spleen was dark and also enlarged. The

pancreas was enlarged and extremely fibrous; the intestines were thin-walled and pale; the lungs normal in size, full, and apparently healthy.

The spinal cord was hardened, the segments separated, and sections cut and mounted from each.

On examination with low power, the following degenerations were observed:

The anterior pyramidal tract, direct cerebellar tract, crossed pyramidal tract, column of Lissauer, column of Burdach, posterior external field of posterior column, column of Goll.

The area of degeneration extended from the first cervical to the fifth lumbar segments, being greatest at the sixth dorsal and the third cervical. All other columns of the cord were normal. Examination of the degeneration areas with high power showed axis cylinders and medullary sheaths in various stages of degeneration. Many of them were granular and others fatty. The degenerated columns especially, in the mid-dorsal region were shrunk and contained an excess of connective tissue. The gray matter appeared normal throughout.

Sections of the liver, treated with potassium ferrocyanide and acid alcohol, showed areas of fatty infiltration and degeneration, and an enormous deposit of hæmosiderin and hæmatoidin, both in the cells and in their trabecula.

Examination of the arteries showed thickening of their middle coat.

No apparent relation existed between the areas of degeneration and the mid-dorsal clot noted at the post-mortem.

Taken as a whole it would seem that the scleroses were certainly not systemic in their origin, but probably were of vascular origin.

The findings in this case would seem to bear out Nonne's conclusions.

Dr. OSLER, of Baltimore, said: I should like to ask if there were any symptoms associated with the hemorrhage, which seems to be the special feature of the case. Absence of knee-jerk may be a very early symptom associated with the common sclerosis of the posterior columns in anemia. I have seen recently a case of pernicious anemia with all the features of a spastic paraplegia, which developed somewhat suddenly. It may have been due, as in Dr. Riggs's case, to a hemorrhage into the meninges.

Dr. J. J. PUTNAM, in discussing Dr. Riggs' paper, said: I desire to ask if there was any one spot of specially great disorganization of the tissue. In a case of this general sort which I observed some years ago, the paraplegia came on quite rapidly. I believe Dr. Riggs does not think the hemorrhage caused the paralysis.

Dr. RIGGS, in closing the discussion, said: It was very difficult to ascertain the amount of hemorrhage that occurred. There was no one spot of greater disintegration than any other and I do not think there was any special area of disorganization. I thought at first the hemorrhage was the cause of the paraplegia, but I subsequently changed my mind.

PROGRESSIVE MUSCULAR ATROPHY OF SUDDEN ONSET.

BY DR. THEODORE DILLER, PITTSBURG.

(ABSTRACT.)

A healthy man, aged 48, while at work at his trade (plastering) on December 31, 1892, developed a large swelling on the back of his right hand, which subsided in the course of three days and which was at no time either red or swollen. The next day after the swelling began he noted a distinct loss of power in the swollen hand and in the right arm. This loss of muscular power continued without increase or diminution for a period of six months. But a few days after the appearance of the palsy, atrophy took place in the affected muscles. This wasting progressed for several weeks. At the end of that time there was marked atrophy of the deltoid and radial groups of muscles of right upper extremity. No pain or other sensory disorder. During a period of two years, while removed from observation, this atrophy and palsy had continually progressed, leaving the arm almost useless. Four months before the end of this two year period, atrophy and loss of power began in left upper extremity and progressed steadily, involving the same groups of muscles as on the right side. This atrophy and loss of power in the left upper extremity while quite marked, was not nearly so advanced as that on the right side. While the onset of palsy in the right upper extremity was sudden, that of the left was quite gradual.

The patient has been under observation since his two year absence for about six months. During these six months there has been no progress in his symptoms; this was also true of the four months during which he was first under observation. While during the two years that he was not under observation the patient is sure the disease had noticeably progressed from month to month. Dr. Diller attributed these stays in the progress of the disease to large doses of strychnia which the man received while under his care.

A convergent squint noted during the first period of observation was at the second period found to have greatly increased. Careful examination by Dr. G. E. Curry revealed total palsy of right external rectus and slight loss of power in left external rectus, besides a complete internal ophthalmoplegia.

The sudden onset of palsy in right arm and hand followed quickly by atrophy and the absence of sensory symptoms led Dr. Diller to at first regard the case as one of poliomyelitis adutorum. But the steadily progressive tendency during two years and the subsequent involvement of the left arm led him afterwards to regard the case as one of progressive muscular atrophy, while still maintaining that inflammatory changes affecting the neurons of anterior horns of cervical cord were as responsible for the first symptoms. The case began, he believed, as one of poliomyelitis, but afterwards became one of progressive muscular atrophy.

American Psychiatry.

UNDER THE DIRECTION OF

R. M. PHELPS, A.M., M.D.,

Rochester, Minn

With the Following Collaborators:

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EDITORIAL.

Classification of Insanity.

Questioned closely about a fever a physician wishes to make a positive statement of measles, of scarlet fever, or typhoid or other fever, because he regards these as mutually exclusive. Led on by the same form of presupposition the Alienist is supposed to fix some precise name to each particular case of insanity. It is easy to select some particular name like acute delirium, acute mania, senile dementia, or paranoia and stick to it, but we have frequently of late considered it more conscientious and more productive of ultimate clear thought to frankly admit, at

least to those who are students in Psychiatry, that in some cases the name was not essential, or that we might select one of several names if we wished. So much of admission has seemed hazardous and insecure to many, but if it is admitted *to be the truth*, it would seem that we could in the interests of science (which is truth developed), freely hazard such statements rather than to hazard the criticisms and doubt which arise on trying to adhere to some particular name.

To bring the argument out by an example: a case recently came into legal question in which was present the elements of age, alcoholic causation, chronicity, and a paranoiac state. Manifestly here the question arose to decide between "sanity," according to some public criticism; "paranoia," from the presence of one delusion of persecution which was held vaguely and only occasionally became obtrusive, with a fairly clear mental state aside from that; "senile dementia," from the age, nearly sixty, arcus senilis, circulatory impairment and a very symmetrical weakness of mind (such as was shown by the continued repetition of one story); "alcoholic insanity" from the claim that he was only markedly insane after drinking, and that the state had developed on account of drinking; and "chronic mania," a term covering the chronic mental state with fair accuracy. Having selected *senile dementia* on the ground that the symmetrical weakness of mind, though not noted usually on casual conversation, was yet the fundamental element which supported all the rest, and that it came with senility, we could yet but admit that Paranoia was also a quite appropriate term, that chronic mania would fairly cover the case, and that alcoholic dementia was debatably appropriate. Yet to a mixed audience it would be hard to explain such seemingly quibbling vacillations.

To carry this idea along we will consider it as quite generally applicable among the names. The most early and time-honored distinction is between mania and melancholia, yet we have seen cases of which we have been fairly content to say, "we don't know." For we did not know which name was most appropriate and had lost the sense of obligation to forcibly select one, except when necessary to tabulate. Some patients have ideas so mingled between exaltation and depression that one cannot tell which predominates, or perhaps cannot tell which is predominant a majority of the time.

Pushing the idea still further in a population of 1,000 patients we can easily find cases in which alcoholism, senility, and syphilis mix with either mania, melancholia or paresis. Imbecility of high grade can mingle with nearly every one, and as an element is too often ignored. Paranoia as a form of senility is somewhat common, while acute delirium we have clinically been able to mark out only as an extreme degree of

mania. Dementia mixes inextricably with mania and melancholia of chronic form, and secondary dementia is a term applied in a very arbitrary manner. General Paresis has been set apart commonly as an entity, as separate from other forms as is typhoid fever. Far more distinct than the others it surely is, yet the last decade has seen it gradually mingling its borders with other forms. As a premature form of senility it was early noted, later it is seen to link closely with organic brain diseases, to resemble adult chorea and athetosis and somewhat vaguely still other forms of mental diseases.

What should be our conclusion then. To abolish these names? Not at all. They are useful; but, as students of a specialty, we should recognize them as only designating *types*. They designate the adjudged predominating element in the case; thus senile dementia means that we adjudge senility the predominating element, though melancholia, alcoholism or other elements accompany it. This seems sufficiently evident to need little elaboration. If we divide a section of pasture land into half sections, quarter sections, eighties, and forties, each one is separate enough, yet the lines are arbitrary, and the grazing cattle may be as thick along and upon the lines as in the centre. Likewise, if we divide it into hills, valleys, and levels, the cattle can both be found on intervening strips and can move from one to the other. This illustration does not extend far enough, because not two adjoining types alone can contribute in a case, but elements from nearly all can enter into one case of insanity.

To apply this briefly to classification; many have been the struggles to form a list of names which should cover all the ground and the classes be mutually exclusive. Occasionally it has enlarged itself to a hundred or more names with their genera and species, more frequently, and especially on attempts to unite different institutions on a common basis, it has come down to a half dozen or so. Occasionally also all attempts at classification has been ignored, occasionally it has been tried to have only one basis of division such as the pathological, or the etiological. More often a mixed basis has been assumed. Probably the most recent attempt at a precise list is found in Spitzka's manual. To try for precision seems better than to meander idly about, yet as was before said, the exactness is not like that between pneumonia and typhoid fever, but more like that between pharyngitis and tonsillitis, a slight change of location in a similar process changing the symptoms very markedly.

In short, to recur to a previous idea, insanity is a symptom, a symptom of some change or defect, temporary or permanent, in the material substance of the brain. The differing localities in the brain having manifold and varying initiatory or trans-

mitting offices, the symptoms will vary in form with the location and extent of the brain change. Everything being microscopic, one lesion will rarely have its exact counterpart in location, and the symptoms will rarely have their exact counterpart in other mental symptoms.

To state the facts of mental change then comes first: To assign the combination of facts to one of a set of names is second. As a natural consequence the classification selected should be largely one of convenience. It should largely avoid the straining at a consistent one-basis system and adopt such names as will bring out the more practical elements, such as those of "curability." Should, moreover, be arranged in such a way that one would follow a set of patients from year to year to their ultimate disposal as "recovered," "died," "improved," "chronic," or "recurrent." A committee of the Medico-Psychological Association is now working at such a table, and amid the discussion aroused it is to be hoped that some better and more live tables will be evolved. Our own preference we design to present later.

ORIGINAL STUDIES AND REPORTS.

The Association of Assistant Physicians. The Association of Assistant Physicians met May 7th at the Hospital at Independence, Iowa, where they were cordially welcomed by Dr. Hill, the Superintendent. In the opening meeting Dr. Hill made a few remarks of welcome and reminiscence precedent to the regular work on the program. A business meeting was then held looking toward and providing for a still further development of this initial idea. By the Secretary's report it was found that the society had grown to a membership of over fifty names, and many cordial helping words were received.

The program that followed during the evening and the next day showed that, for this meeting, the especial subject of the Physical Stigmata of Degeneration had been assumed by the charter members at a previous meeting as one deserving development. An article on "Degenerate Jaws," by Dr. Boody, of Independence, gave the results of his investigation thus far, by reason of which he was convinced of a large percentage of abnormalities of the mouth, and had become sincerely enthusiastic in developing the subject.

Dr. Boody also presented the idea of lard inunctions, in emaciating and stuporous cases, and reported four cases which had built up very rapidly upon this treatment. Dr. Warner in the discussion following, corroborated these opinions from a more considerable number of patients, some of whom had been subjects of massage and various nutritive efforts prev-

iously. The discussion revealed that the gain in weight was at times more than the weight of lard rubbed in and the elements of massage, peripheral stimulation, and increased metabolism as adjuvant elements were discussed. Whatever theory is assumed, the rapid gain in weight stood as a fact to be accounted for.

Dr. McCorn, from a previous three years' experience as prison physician, discussed very enthusiastically and entertainingly the Bertillon system of measurements, and as being somewhat new to alienists several hundred photographs and measurements were presented for examination, as were also the instruments used. The percentage of anomalies in the prison population were calculated in a very accurate painstaking way, and the doctor was quite positive in his beliefs in the value of the physical signs of degeneracy, especially as he had seen them confirmed by the mental stigmata accompanying them.

This article was followed by one by Dr. Stearns, Pathologist at Kankakee Hospital, who has been developing a system for a minute and complete examination of insane patients on admission. The special phase here presented, however, was only the one concerning the anthropological data. He presented a blank with a place for photographs (profile and front), and two pages of data for measurements upon examination, comprising over one hundred headings. We mention the number only to show how full the examination is, even curtailed as the author regarded it to a practical brevity, consistent with a system covering like examinations of other character. These headings included the Bertillon measurements.

An autopsy, with finding of an abnormal kidney, was detailed by Dr. A. Morse, of Pontiac. Dr. I. H. Neff presented some tabulated results from a list of 368 cases of General Paresis in the records of the Pontiac hospital, followed by Dr. Phelps in a clinical report of 100 cases of General Paresis personally drawn from them. In these two papers and the discussion following, Syphilis was given the most important causal place. Just how important it was, as usual it was impossible to say, for the histories were never accurate, the disease was often denied, left no unmistakable lesions, and at times was not surely known by the patient himself. Presumptive evidence was therefore to be considered scientific and applicable, though not conclusive, and trended toward making Syphilis a cause far more important than actual statistics could ever show.

The straightforward spirit and tone of the work was very hopeful. Only clinical work was taken up or suggested. A plan was proposed to systematically bring forward the whole broad line of alienistic work proper, as separate from the custodial work, so as to divide up the work among the members, that each should in his work be the complement of the other, and

that all should develop broadly and conservatively and keep up a steady advance.

There is more of meaning, of newness and of importance in this society than would at once seem. The sacrifice to attend is more than usual, and the spirit is one that promises good results. The motion to make the invitation a general one to assistant physicians prevailed, and we consider the movement worthy of generous co-operation on the part of each one. The reflex incitement and interest is much needed by them.

PHILIPS.

Lucid Letters of Insane People.

It is frequently said of insane people that they are sane except on one subject; or, that while they are generally insane, on one subject they are sane.

While this is not strictly true, it is remarkable how some who are very insane will do seemingly very sane things, especially in the way of writing. A number of years ago an Irishman, who went by the name of "Corporal Barry," was an inmate of the "Steilacoom Asylum," suffered with chronic mania. He had been dishonorably discharged from the U. S. army several years before, with loss of pay, for continued insubordination, caused, no doubt, by incipient insanity. He was a fine penman, and was employed as Quarter Master's clerk. As an insane man he was nervous, restless, and an incessant talker of incoherent words and sentences, and was usually threatening and abusive. Yet he could and did write letters to his mother in Ireland, in a beautiful hand, in which there was not a trace of insanity, letters such as any dutiful son would write to his mother.

On two different occasions, several years apart, he wrote a very respectful letter to the Adjutant-General at Washington, stating that the Government was in arrears with his pay, giving branch of service, regiment, company, place, etc., with great particularity, and asking that he be paid. In due course of time each letter was returned with endoresment from various offices of the War Department, and the information that he had been court-martialed and discharged, and that his pay was forfeited.

Another patient, an old sea captain, who had been insane eight years and could not talk rationally on any subject, wrote a very intelligent letter to Secretary Blaine, recommending the mouth of "Steilacoom Creek" as a good location for the Dry Dock the Government was about to establish on Puget Sound, and was answered by Mr. Blaine's private secretary, with the assurance that the recommendation would receive due consideration.

Another patient now in the hospital, who talks the veriest

nonsense continually and always in rhyme, also writes nice readable letters. She wrote one to her mother, the first one she had written to her since her commitment, eighteen months before. It was so sane that the overjoyed mother came more than one hundred miles to take her home, only to find that her daughter was not only insane but was indecent and profane in the language which she used so fluently.

Another patient, a minister, wrote to Wanamaker, stating that he had always bought his clothes of him, and would like a good clerical suit and an overcoat, giving the proper measurement and stating the kind of material wanted. I was very much surprised a few weeks later to find that the order had been filled, and that the clothes had arrived, for I had endorsed on his letter: "This is from an insane man."

These "lucid" writers frequently cause trouble, for, while they use good language, the statements they make are apt to be unreliable.

WAUHOP.

Care of Epileptics In September, 1894, the writer began in Virginia. the agitation in Virginia of the matter of institutional care and treatment of epileptics (*Virginia Medical Monthly*, Richmond, Va.). Twelve months later a paper read before the State Medical Society on "State Provision for Epileptics" (See *Jour. Am. Med. Ass.*, Nov. 2, 1894), led to the unanimous adoption of the following resolution:

"Resolved, 1. That it is the sense of the Medical Society of Virginia that the State should make some special provision for its dependent epileptics.

Resolved, 2. That an epileptic institution or colony, conducted on the industrial plan (such as described by Dr. Wm. F. Drewy in his paper on "State Provision for Epileptics"), commends itself to this Society.

Resolved, 3. That a committee of five members be appointed by the President to present this matter to the next Legislature of Virginia, and try to induce that body to give it that attention it justly deserves."

The Legislature now in Session has been induced to pass a bill providing for the creation of an epileptic commission to investigate the subject in all its bearings, and to report to the next Legislature the result of their deliberations, etc.

So, therefore, this humane project of the public care of epileptics has gained a foot-hold in Virginia. First, it received the hearty endorsement of the medical profession. Second, it received the recognition and support of the Legislature.

I verily believe that before the close of this century an epileptic colony will be established in the Old Dominion.

Recognizing the importance of separating epileptics from the insane patients, steps are being taken at the hospital to

which I am attached looking to the building of an epileptic cottage.

I have ascertained that there are in the four insane hospitals of the State more than 200 epileptics, and in the poor-houses quite as many. Outside of any institution there are, at the lowest calculation, 3,000 epileptics in Virginia, at least half of whom, I believe, are in great need of attention.

WILLIAM F. DREWRY.

ABSTRACTS.

The Insane in Austria. *Medical Record*, Feb. 22, 1896 (correspondence). Exact statistics do not seem to have been prepared, yet it is noted there as here, that accommodations are far short of the actual need. "In lower Austria there are five provincial asylums, for a population of two million; the largest, in Vienna, having a normal capacity of seven hundred, with a census of nine hundred patients." The Asylum proper is of the style here of those built fifty years ago. Many of the municipal insane of Vienna are cared for in the large general hospital. In the Asylum is found little interior decoration, few resources for amusement, though considerable for employment outside, and a compensation is fixed for such labor. Smoking is common in the corridors. An unpleasantly custodial aspect is noted.

An independent financial and medical department is not approved, yet the medical staff is relieved of all except professional duties and close attention to medical work is exacted. The scientific atmosphere of the neighboring general hospital also influences them, and close and accurate observation of cases is common.

As to the treatment, not much was observed not common in the United States. Opium was used in melancholia, but rest in bed was of most importance. Trional is a favorite hypnotic, tuberculin is being used, hoping that the subsequent febrile state might induce recovery. Some hopeful improvements are already reported. Restraint is occasionally used. Little classification is in use at present.

A new hospital is being provided in which there will be provision for a hospital building proper with all the refinements of modern curative treatment, trained nursing and hygienic care.

NOTICE.

The very painstaking and detailed description of a case of mammary cancer, in the July number should have been accredited to Dr. Ella B. Everitt, of the St. Peter State Hospital. By mistake the signature was omitted.

Periscope.

Under the Direction of the Following Collaborators :

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ANATOMICAL.

***Further Remarks
on the Projection Sys-
tem of the Human
Cerebrum.***

By Prof. Flechsig (*Neurol. Centralbl.*, 1896. No. 1). Most of the bundles of projection fibres in their course to the cortex choose the shortest path-way, taking a radial course from the internal capsule to the cortex. Some divisions of this system, however, make considerable round-about-ways, which fact is of importance for the *topic diagnostics* of cerebral diseases. Among the bundles taking such unusual course the following ones deserve special mention :

(1) The inferior longitudinal fascicle. This bundle has heretofore been considered as an association tract connecting the occipital lobe with the entire temporal lobe, including its anterior portion. F. finds that this tract, indeed, ends *posteriorly* in the occipital lobe, especially in the visual area, that anteriorly, however, they do not connect with the cortex but with the optic thalamus. From the occipital lobe these fibres go over into the temporal lobe in which they pass forward as far as the region, lateral and backward of the nucleus amygalæ. From here they go upward partly under an acute angle encircling the inferior part of the lateral ventricle *anteriorly*. In the thalamus they become connected partly with the basal portions of its lateral nucleus or with the "schalenformiger Körper," partly they ascend at the posterior surface of the pulvinar and enter into the Hauptkern (Flechsig).

The inferior longitudinal fascicle is accordingly nothing else than a part of Gratiolet's optic radiations. This fascicle probably does not serve exclusively for the conduction of visual

impressions, but presumably contains also centrifugal pathways, securing to the visual area an influence upon muscular motions, etc.

(2) The projection system of the body—sensational area ("tactile-area" of Flechsig, motor area of the other authors): The pathways for the foot of the first frontal convolution and for the middle third of the fornicate gyrus describe a forward curve reaching as far forward as two or three cm. from the "pole" of the frontal lobe. Lesions (softening foci) involving the anterior end of the frontal lobe may consequently interrupt projection fibres for the trunk and neck muscles represented in the said cortical areas (foot of third frontal convolution and middle third of the fornicate gyrus).

(3) The fasciculus subcallosus also contains projection fibres which, leaving the internal capsule at the level of the middle thalamus, pass along the caudate nucleus partly as far forward as the knee of the corpus callosum and join the projection system of the fornicate gyrus, and of the most anterior divisions of Flechsig's "tactile-area."

The examination of the infantile brain shows that long association fibres connecting the occipito-temporal lobe with the frontal lobe are very scarce. ONUF.

On hemisection of the spinal cord. By Dr. F. Botazzi (*Rivista sperimentale di freniatria*. Vol. 21, Fasc. 4).

In this article the author describes the clinical condition and the degenerative changes observed in four dogs on which he had performed hemisection of the cord in the dorso-lumbar region and which were allowed to live for 16, 127, 132 and 207 days after the operation respectively. In giving a general critical review of the literature on hemisection of the cord and comparing his results with those of other investigators the author reaches the following conclusions:

1. The motor pathways for the inferior (posterior) extremities are contained chiefly in the lateral column of the same side.

2. The fibres for the tactile sense are contained exclusively in the uncrossed half of the cord, probably in Goll's columns.

3. The pain sense and the electric sense are conducted in both sides of the cord, but predominantly in the homonymous half.

4. [The temperature sense is conducted in the uncrossed half of the cord (?); the muscular sense does not seem altered after hemisection (only one observation)].

5. Hemianæsthesia exclusively of the side opposite to the hemisection would result only, if the section was made above the level at which the last sensory fibres have undergone decussation, namely, above the spinal cord.

6. At the level of the dorsal portion of the cord decussated sensory fibres are much more scarce than the uncrossed ones.

7. It is very probable that for one form of sensation (tactile) at least, no decussation takes place in the spinal cord.

ONUF.

PATHOLOGICAL.

Contribution to the Knowledge of the Secondary Changes in the White Substance of the Cord due to Disease of the Cauda Equina.

By Prof. L. O. Darkschewitsch (*Neurolog. Centralblatt*, 1896. No. 1) The report concerns a case of carcinoma which had involved the abdominal surface of the second, third and fourth lumbar vertebræ. The neoplasm had not entered into the vertebral canal, but corresponding to the lower fourth of the cauda equina the dura presented the condition of a pachymeningitis externa hypertrophica which had led to degeneration of the roots within said area.

Examination of the cord showed the absolute absence of any other changes but those due to the degeneration of root fibres.

All posterior root bundles up to the level of the first lumbar segment were degenerated; from the twelfth dorsal segment upwards they were all normal. Accordingly the transverse sections showed degeneration of both posterior columns in their whole extent from below up to the first lumbar segment. Further upwards normal fibres began to appear at the medial border of the posterior horn, that is, in the region corresponding to the zone radicaire. This zone of normal fibres become larger, extending more and more mesial, the higher one came upwards in the cord, so that at the level of the third cervical segment the area of degeneration was reduced to a wedge, the base of which corresponded to the dorsal border of Goll's column, while its point was at about one-quarter of the depth of the posterior longitudinal septum behind (dorsad of) the posterior commissure. In other words, the degenerated area which represent directs fibres of the posterior root bundles of the cauda equina, corresponded in this region exactly to that part which on specimens of embryos is described as Goll's column.

At the height of the nuclei of the posterior columns, the degeneration in the white substance extended also over the whole column of Goll and reached also within the nucleus of Goll's column of each side. Burdach's columns and the nuclei of Burdach's columns were normal.

In the upper region of the lumbar and the lower regions of the dorsal portion of the cord, degenerating root bundles could be followed to the lateral periphery of Clarke's columns and partly within these formations.

The posterior commissure showed nowhere any degenerating fibres, which, D. concludes speaks against the statement.

that part of the posterior root fibres pass directly into the opposite half of the cord. The anterior roots showed also degenerative changes in the sacral and lumbar portions of the cord.

The findings of this case confirm for man the anatomical relations of the posterior roots which Singer and Münzer had found to exist in dogs on the ground of experimental investigation. The direct connection of posterior root bundles of the lowest portion of the cord with the nucleus of Goll's column is present also in man. Goll's column is consequently formed by long fibres which are the direct continuation of root fibres of the posterior roots contained within the cauda equina.

The fact that a great part of the fibres belonging in the cauda equina end within Clarke's columns, makes it probable that the nuclei of Goll's columns are homologa of Clarke's columns.

ONUF.

Left Facial, Glossal, Pharyngeal and Laryngeal (?) Paralysis due to a Softening Focus of the Right Centrum Semiovale. By D. A. Wallenberg (*Neurol. Centralblatt*, 1896, No. 5). In a man of 47 years, who for several years has been suffering from insufficiency of the aortic valves without distinct signs of aneurysm, and without paralysis of the recurrent branch of the pneumogastric nerve, the following symptoms developed about a year ago or still earlier: Myosis on both eyes with loss of response, paralysis of the right sixth nerve. Then gradually increasing dementia, headaches, attacks of dyspnœa, vomiting, a pulmonary affection of a few days' duration (embolism?).

After the condition had remained stationary during several months, the following symptoms developed within three days: total paralysis of deglutition, paresis of the left facial nerve in all its branches, of the left vocal cord and in slight degree also of the muscles elevating the left shoulder.

Aside from this there was œdema of the left conjunctiva, of the right upper lid, formation of two tumors on the left half of the skull. No reaction of degeneration in the paralyzed muscles, but lessened excitability to both kinds of currents. Trunk and extremities show no disturbances of sensation and motion. The tumors disappeared after mercury treatment, the palsies receded considerably. About three weeks after the development of the complex of symptoms described, the patient was taken with vomiting, dyspnœa and collapse, resulting in death.

W. had made the diagnosis of a bulbar affection, but the autopsy proved that the symptoms developing three weeks before death were due to a focus in the right centrum semiovale. The following tracts of fibres had suffered complete interruption of continuity by the focus: Nearly all projection fibres of the third frontal convolution, of the ventral half of the second

frontal convolution, of the "Uebergangswindung," some few elements from the ventral portions of the central convolutions, much more from the orbital gyri, chiefly the lateral; also the sagittal association tracts of the frontal lobe, fibres of the corpus callosum and elements of the external capsule.

The caudate and lenticular nuclei and the internal capsule lie ventrad of the focus and are entirely untouched by it.

The majority of German neurologists seem to accept the view of Simon and Huxley, that each hemisphere presides in equal degree over the movements of both vocal cords. Masini and Brissaud claim that each hemisphere presides predominantly over the contra-lateral vocal cord and only to small extent over that of the same side. W. concludes that the findings of his case serve to corroborate the latter view.

It may be considered as proven that the part of the operculum which is situated behind the anterior ascending branch of the sylvian fissure together with the adjoining portions of the anterior (less of the posterior) central convolution, and of the third frontal convolution represent motor centres for all muscles of the left half of the face and tongue, and for the acts of mastication and deglutition. The larynx centre is located by Brissaud in that part of the operculum which occupies the space between the anterior ascending and anterior horizontal branch of the sylvian fissure.

In W.'s case the medullary fibres of the above divisions of the cortex were destroyed for the most part. The findings are thus in harmony with the above-named views.

The pictures accompanying the paper illustrate clearly the conditions. ONUF.

Tendon Reflex in Typhoid Fever. In his thesis for the Doctor's Degree, at Nancy, M. Renard stated that he

had examined the tendon reflex in fifty cases of typhoid fever; that in seventy per cent. it was exaggerated, and in thirty per cent. either abolished or normal, and he found also that it was subject to daily fluctuations which appeared to have no relation to the severity of the enteric disease. He concludes from two post-mortem examinations in which fragmentation of the myelin in some of the nerve tubules in the dorso-lumbar region was present, was due to a localized irritation in the spinal cord. The conjecture is apparently founded upon an insufficient pathological observation, however. MITCHELL.

The Pathology and Treatment of the Occupation-Neuroses.
By Dr. Alois Pick.

(*Wiener Med. Wochenschr.*, 1895). The author made a study of writers-cramp, especially, and found in the vast majority of cases, hard and soft, roundish swellings along the extensor tendons of the fingers, especially

in the extensors of the index, middle finger and thumb, which were often ranged like a rosary. He believes the swellings to be due to exudation of rheumatic origin in the tendon-sheaths, and sometimes in the muscles. In analogy with tendo vaginitis the process occurs in the extensor tendons, because these, latter, are stretched and strained while working. Massage caused the absorption of the nodules, and the faradic current was applied. The results obtained were most satisfactory.

MACALESTER.

Landry's Paralysis with Poliomyelitic Lesions of the Nervous Centres due to the Presence of a Microbe.

Dr. Pierre Marie (*La France Méd.*, Oct. 25, 1895) communicated the observation of a young groom, who died with typical symptoms of Landry's acute ascending paralysis. The autopsy revealed a hemorrhagic softening of the gray substance in the anterior horns. Therefore, the lesion was central, and not peripheral, as maintained by certain authors. Microbes were found, and in the cervical and dorsal region they were present in almost pure cultures. Artificial cultures were not made, but, morphologically, the microbe resembled the bacillus anthracis.

MACALESTER.

CLINICAL.

Acute and Chronic Mercurial Polyneuritis.

Drs. Spillmann and Etienne (*La France Méd.*, Sept. 6, 1895) reported before the French Congress of Medicine, held in Bordeaux, three cases of mercurial polyneuritis. The symptoms of acute cases are: Marked general muscular atrophy, often nearly of all the muscles; no degeneration, and diminution of the tendon-reflexes. In the chronic cases, the disorders are limited (dissociated), with absence of muscular atrophy, persistence of galvanic and faradic contractility, presence of the reflexes, and co-existence of sensory and motor troubles. The authors succeeded in producing paralysis of the hind extremities in rabbits, experimentally.

MACALESTER.

Morphinomania in an Infant Four Months Old.

La France Médicale, May 15, 1896, contains an account of a four months old baby, brought up on the bottle by a nurse. As the baby was irritable and sleepless at night, the nurse had nothing better to do than to add to the milk a decoction of poppies. At first one poppy head was sufficient to produce sleep for six to eight hours; later on three were required, which were generally given in the evening. On swallowing, the child seemed well and ate fairly. Its development, however, seemed to stop for two months, and it was pale, deli-

cate and thin. As soon as the decoction was stopped the child got irritable, crying constantly, and refused to take any nourishment. After a week of abstinence, it became very weak, and the pulse and respiration became frequent. Then a decoction was administered again and the infant recuperated at once, and after sleeping for several hours, woke up apparently in good health. When the drug was suppressed again the stools became greenish and mucous, and the child died ten days later.

MACALESTER.

Mental Anorexia. In an interesting article Dr. P. Sollier describes a malady hitherto very ill differentiated, which he proposes to call by the above title. From a clinical point of view its fundamental characteristics are anorexia and a special mental state which accompanies or oftener precedes it. Its only subjects, so far as the author has observed, are young women or girls. He finds them generally to have a neurotic heredity. The trouble begins sometimes without apparent cause, or with a trifling emotional origin, not infrequently suggestion, either from the patient herself or from those about her.

The onset is slow, the patient gradually eating less and less, appetite disappearing with the habit of eating. Rapid wasting follows; no sensory trouble is usually observed; there is generally no pain. The commonest complaint is of a sense of fullness of the stomach the moment that a small amount of food has been ingested. The general powers are pretty well preserved; patients have even sometimes a strong desire to walk a great deal. Sooner or later, however, the moment arrives when they are obliged to give up all attempts at movement, and become confined to bed, or at least to a couch. The urine will be found loaded and small in quantity; the bowels always, as might be expected, obstinately constipated. Sleep, in the development period of the disease is generally bad, but is never the absolute insomnia seen in hysterical anorexia. If there is headache, it is not of the typical hysterical sort. There are usually no hyperæsthetic points as in hysteria or neurasthenia. In short, the physical condition gives mostly negative signs. The psychical state is similar, diminution of power being its chief characteristic; memory is impaired, attention poor, and the patients generally have difficulty in reading or writing, or performing any continuous intellectual effort.

The duration is variable, and may be from two years to six or seven, ending in cure, chronic malnutrition or death; the last often brought about by an acute intercurrent trouble, such as tuberculosis or progressive cachexia.

The points of differential diagnosis have already been stated; the disorders with which it is easiest to confuse the state being

neurasthenic gastro-intestinal atony, or primary hysterical anorexia. The neurasthenic symptoms are wanting. The condition is more chronic and without the remissions, which so often occur in neurasthenic patients, and the psychical state is wholly different. Patients with "Mental Anorexia" are neither hypochondriac nor desirous of medication; neurasthenics are great devotees of various cures and filled with anxiety about themselves. More difficult is the separation from hysterical anorexia; but if careful attention is given to the hysterical stigmata; the points of hypersensitiveness upon the skull, the spine, the ovaries, and the lost sense of taste, so common in hysterical sufferers; the perversions and caprices of desires and appetites; all these will be indices pointing to hysterical disease.

The author has nothing to say that is new or original on the treatment of these troubles, and, indeed, the distinctions of diagnosis which he has made with such extreme care are somewhat unnecessary in the treatment, which is essentially the same for neurasthenic, hysterical, and mental cases, viz., isolation and forced feeding. He says wisely enough, that after six weeks' or two months' trial of this plan it is well to make a change if decided improvement has not resulted, as isolation has by no means the almost universal success which attends its proper use in hysteria.—*La Merc. Med.*, September 18, 1895.

MITCHELL.

Diagnosis of Intestinal Neurosis.

Dr. R. Von Engelhardt considers that the important differential signs between catarrh of the intestines and neurotic disturbances, are, that in catarrh, while constipation sometimes alternates with diarrhœa, the loose stools are generally passed at night or in the early morning; but in neurotic disturbances they always occur during the day, sometimes after meals and sometimes upon emotional occasion. Again, in chronic intestinal catarrh a change of diet is apt to increase the disturbance and add to the diarrhœa; but patients with nervous intestinal troubles usually do best upon a generous mixed diet; and third, the colon, particularly in its descending portion is usually tender in catarrhal conditions, while in nervous subjects the abdominal aorta and the iliac arteries are tender, but the colon is not.—*Med. Week.*, Jan. 10, 1896.

MITCHELL.

Book Reviews.

PRINCIPLES OF SURGERY, by N. Senn, M. D., Ph. D., L. D. Professor of Practice of Surgery and Clinical Surgery in Rush Medical College, Chicago; Professor of Surgery in the Chicago Polyclinic; Attending Surgeon to the Presbyterian Hospital; Surgeon in Chief to St. Joseph's Hospital; Ex-President American Surgical Association, etc., etc.; Second Edition. Thoroughly Revised. Illustrated with 178 Wood-engravings and Five Colored Plates. Royal Octave, Pages xvi, 656. Extra cloth, \$4.50 net; Sheep or Half Russia, \$5.50 net. Philadelphia: The F. A. Davis Co., Publishers.

As this work already has an established position among scientific treatises on Surgery, an extended review of its second edition would be superfluous. The Author has, however, thoroughly revised its entire contents and has made additions, several of which are important.

The Etiology and Pathology of surgical diseases have received especial attention, and the result is a thoroughly up-to-date work on the principles of surgery. The great advances which have been made in Surgical pathology are fittingly noted, and the manner in which the author so minutely describes the various pathological processes and shows what a direct relationship the influence of the various bacteria have upon them, is especially noteworthy; and men of experience in this line of work will appreciate this volume.

The technique of a number of the more important operations is described and illustrated, as the author says—"for the special purpose of demonstrating from a practical standpoint, the value of a thorough knowledge of the complicated reparative processes in the treatment of injuries and diseases of surgical intervention."

Over fifty new illustrations, many of them original, have been added to the work; and altogether the Author has shown with what great pains he has kept abreast of the times

GAZZAM.

A MANUAL OF ANATOMY. By Irving S. Haynes, Ph. B. M. D., Adjunct Professor and Demonstrator of Anatomy in Medical Department of N. Y. University. 8vo, pp. No. 680, with 134 half tone illustrations and 43 diagrams. Philadelphia: W. B. Saunders.

This work, according to the author, fills a place in paying more strict attention to the Viscera and their relations to the surface of the body. He frankly admits that nothing new is presented in the text except this

topic of Vesical relations, especially Thoracic and Abdominal, obtained by means of "Composite" photographs. Nearly half of the work, 254 pages is devoted to the Head and Neck, and a very elaborate consideration given to the Course Anatomy of the Brain.

The author has not given consideration to the bones and has avoided much of surgical references. The illustrations are original and the diagrams new. Many of the half-tone plates are indistinct and the massing of muscles and minute details emphasizes the fact that Schematic diagrams and drawings are more satisfactory to student and teacher.

The work is in no sense a complete one, yet, in style, arrangement, indexing and purposes it is a good one, and will, no doubt, prove of great assistance to teachers, and can not but help the students of anatomy. We note the exceptional high class work of the publisher. Mr. Saunders is fast taking pre-eminence in the construction of medical works.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE RECTUM, ANUS, AND CONTIGUOUS TEXTURES. DESIGNED FOR PRACTITIONERS AND STUDENTS. By S. G. Gant, M. D. With two chapters on "Cancer" and "Colotomy," by Herbert William Allington, F. R. C. S. Eng., Surgeon to the Great Northern Hospital; Assistant Surgeon to St. Mark's Hospital for Diseases of the Rectum; Surgical Tutor to St. George's Hospital, etc., etc., London. One Volume, Royal Oct., 400 pages. Illustrated with 16 full-page Chromo Lithographic Plates, and 115 Wood engravings in the text. Extra cloth, \$3.50 net; Half Russia, Gilt Top, \$4.50 net. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry St., Philadelphia; 117 W. Forty Second St., New York; 9 Lakeside Building, Chicago.

This book is throughout concise, simple and practical, and is comprehensive to every one, whether a student or a general practitioner. The arrangement of the subject is good, the various topics being taken up and discussed in an orderly and scientific manner. The tiresome reviews of former literature and the repetitions so frequently found in learned treatises of this order, are here wanting, and the whole subject is brought before us in such a way that it is easily understood.

It is thoroughly up-to-date in every detail and reflects great credit upon the author, not only as a writer, but also as a teacher of this line of work. It is pleasing to see the subjects which are so common in our everyday practice, such as fistulae, fissures, hemorrhoids, etc., brought out so clearly, and to read such practical methods of treatment for the relief of each.

The chapter on auto-infection from the intestinal canal is especially interesting, while the one on Railroadings as an etiological factor in Rectal Diseases is most instructive.

The chapters on Cancer of the Rectum and Colotomy written for the author by Arlingham are valuable contributions to the work and should be duly appreciated. The book is well bound and the print is large and clear, while the illustrations, chromolithographic plates and others, serve as a valuable adjunct to the text.

RAMON GUTTERAS.

THE STOMACH. ITS DISORDERS AND HOW TO CURE THEM.
By J. H. Kellogg, M.D., Illustrated. Modern Medicine Pub. Co. Battle Creek, Mich., 1896.

This work embodies first a sketch of the processes of digestion. Then a consideration of the causes of indigestion and their bearing upon dietetic and other habits. To this is added a description of the various symptoms present in functional diseases of the stomach, together with the means of relieving them, followed by a consideration of each of the several classes of digestive disorders and their management. The author believes in simple measures of treatment as a proper diet, various uses of water, electricity, Swedish movements, massage and general control of the habits of life. Dr. Kellogg says that in the United States starch indigestion is coming to be an almost universal complaint. The cause is drinking too much fluid with meals in consequence of which there is not sufficient stimulation of the salivary glands, so that the amount of saliva produced is not adequate to digest the starch eaten. Inability to digest starch, he says, is one of the great causes of the inordinate consumption of meat among the English speaking race. Yet the abundant provision made in the human body for the digestion of starch shows that man was intended to subsist largely upon farinaceous foods. The remedy for starch indigestion is a dry diet which necessitates thorough mastication. He believes in the habit of eating only two meals daily, seven hours apart, the dinner not to be served later than six o'clock. Gentle exercise after eating is considered beneficial. The brain worker, he says, needs more food than the laboring man, but he cannot dispose of it like the latter, and should really consume less. Ordinary butter he considers very unwholesome owing to the presence of microbes, and consequently only sterilized butter is fit for human consumption. The free use of meat he condemns on the ground that it debilitates the stomach and in some produces gastric catarrh, as it is the most exciting and stimulating of foods to this organ. Condiments, tea, coffee and tobacco are all considered injurious. Oysters are also regarded as harmful owing to the presence of germs. Granose he highly recommends as a thoroughly sterilized food. The method of examining the stomach contents employed by Dr Kellogg is based chiefly upon that of Hayem and Winter and is too complicated for use by the general practitioner. According to the author migraine is always associated with dilatation of the stomach. The book contains a list of twenty-five dietaries recommended for various conditions. Considerable space is devoted to massage of the stomach and bowels and various exercises, with accompanying illustrations. Dr. Kellogg states that his patients for years past have been constantly demanding a manual which should constitute to some degree at least a guide to them in their efforts to recover a healthy digestion. He hopes the present work will give the information which he believes every sufferer from indigestion ought to have, and which every busy general practitioner cannot but be glad to have his patients suffering from this class of disorders possess.

FREEMAN.

SYPHILIS IN ANCIENT AND PREHISTORIC TIMES. By F. Buret, Paris. Translated by A. H. Ohmann Dumesnil, M.D. 3 volumes. Published by F. A. Davis.

This is a part of the "Student's and Physician's Ready Reference Series," and accomplishes much in the collation of the literature and history of the subject. It is full of information and a work in which one takes much interest and profit in perusing from cover to cover.

DONT'S FOR CONSUMPTIVES, OR THE SCIENTIFIC MANAGEMENT OF PULMONARY TUBERCULOSIS. How the pulmonary invalid may make and maintain a modern sanatorium of his home, with additional chapters descriptive of how every consumptive person may apply the forces of nature to assist and hasten recovery, and also how the defects of heredity may be best overcome. By Charles Wilson Ingraham, M.D., Binghamton, N. Y.

This book is dedicated to the advancement of self-study among pulmonary invalids and a promotion of public information upon the subject of tuberculosis.

We cannot commend this work in any way and relegate it to the class of communications more for the use of the susceptible laity than the instruction of the student.

OBSTETRIC ACCIDENTS, EMERGENCIES AND OPERATIONS.
By L. Ch. Boislinure, A.M., M.D., LL.D., published
by W. B. Saunders, Phila.

This work has a limited field of usefulness and confines itself to those grave emergencies as abortion, puerperal hemorrhages, retention of placenta rupture of the uterus, contraction of pelvis, etc., and as such hardly needs a very elaborate review as it presents nothing particularly new nor elucidates the subjects more perfectly than has been done heretofore.

Space will not permit us to go in the specific merits of the work, but much can certainly be learned by reading it.

NOTICE!

GRAY'S ANATOMY. Lea Brothers & Co. announce the publication of a revised edition of this popular work. They say the sections on the Brain, Spinal Cord and Viscera have been entirely re-written. The book will be increased in size about seventy-five pages, and no less important new engravings—about one hundred and thirty-five in number.

THE
Journal
OF
Nervous and Mental Disease

AMERICAN NEUROLOGICAL ASSOCIATION.

*Twenty-second Annual Meeting, held in the hall of the College
of Physicians of Philadelphia, on June 3, 4, 5, 1896.*

(Continued.)

EPILEPSY AND OTHER CONVULSIVE DISEASES.
A STUDY IN NEURO-DYNAMICS AND
PATHOGENESIS.

BY F. W. LANGDON, M.D.

Of Cincinnati, O.

ANATOMICAL DIGEST.

THE now well-established doctrine of *the neuron*¹ as the anatomical and physiological unit of the nervous system, with the flood of light recently thrown upon its inter-relations by the epoch making researches of Cajal², Golgi³ and a host of other workers in neuro-histology, prominent amongst whom may be mentioned Berkley⁴,⁵, and Starr⁶, in our own country, has made imperative a recast of our conceptions of neuro-processes in general, and of the anatomico-pathologic basis of certain nervous diseases in particular.

As bearing on these newer *general* conceptions may be cited the contributions of Schafer⁷, Broadbent⁸, and Gowers⁹; while the more *particular* advances are exemplified in the researches of Hodge¹⁰, Andriezen¹¹, and Berkley¹².

To sum up the present anatomical status of the sub-

ject: The *neuron* (as defined by Waldeyer), comprises the "nerve cell" proper, with all its processes of every kind and their ultimate ramifications. It thus includes the cell, the fibre, the "spongy reticulum" and the "end-organ" of the older terminology. Figure 1 (semi-diagrammatic) represents better than a prolonged description the type of the neuron, as found in the "large pyramidal cell" layer of the cerebral cortex.

The demonstration, by Cajal, of the *individuality of the neuron*, as opposed to the older views of (1) a *reticular continuity* or (2) a *fusion* with an intermediate homogeneous basis substance, must be considered the most important contribution of the century to our knowledge of the structure and functions of the nervous system.

Though anatomically distinct units, neurons are in physiological relation with each other by means of numerous delicate knobs or projections called gemmules or "contact granules," this contact constituting a continuous protoplasmic chain in a functional sense.

So far we may be said to be sailing by the chart, but recently mapped out, it is true, but already traversed sufficiently often to fix our main bearings.

The domain of the unknown however looms up ahead in shadowy outline, and through the fogs of doubt and the mists of uncertainty we may note here and there an apparent landmark. Max Schultze¹³, quoted and confirmed by Schafer⁷, considers the neuron processes, at least those forming the axis-cylinders of the nerve fibres, as resolvable into bundles of tubules, filled with liquid protoplasm and so accounts for the division of the axis-cylinder at its termination.

If this proposition be true it would seem to the writer to carry with it the bifurcation of the individual tubules at certain places, e. g., opposite the roots of the collateral processes of the axis cylinders; since the outgoing impulses which traverse these tubules must probably be capable of being diverted on occasions; otherwise the motor response to a given sensory income must always be precisely the same, and no provision would exist for "storage" of energy, which must be provided for in any complete scheme of dynamogenesis.

Figure 2 illustrates a portion of such a hypothetical neuron with the tubules of Max Schultze and Schafer, which it will be seen, *traverse* the neuron body ("ganglion cell"). This important fact, which he states is true for some of the tubules at least, gives rise to the equally im-

portant conception that the *elaboration of nerve force* takes place in the *processes* themselves and is not the exclusive function of the cell-body as was formerly thought. We will revert to this part of the subject later.

Figure 2 also illustrates the hypothetical bifurcation of the tubules, which has not yet been observed or even looked for so far as the writer is aware. It is quite possible, however, that the tubular appearance noted by Schafer is really due to coagulation of an inter-fibrillary albuminous nutritive fluid.

In this case the problem is much simplified, and we have only to consider the constituents of the ultimate fibrillæ as rows of molecules in constant vibration in all directions, with the rate and intensity of vibration varying according to the intensity of stimuli which influence them; and tending in the direction of least resistance (established by habit). This would allow for a constant moderate "overflow" of "energy currents" at the collaterals, while the main channel of outflow, the axis-cylinder process, would be on account of its direction as well as "habit" the "line of least resistance." Furthermore, structural arborizations of the neuron processes, whereby protoplasm may come in contact with protoplasm to complete the physiological chain. This would imply either fenestra in the ultimate tubules toward their terminations, or a total disappearance of the tubular walls. The former view would allow of the projection of the contact granules (gemmules) when in functional activity, and then withdrawal (by amœboid contraction) when at rest. This is in harmony with the hypothesis advanced by Duval¹⁴ and Lepine¹⁵ to account for the sudden appearance and equally prompt disappearance of certain symptoms in hysterical, hypnotic, and other functional states; and also for the suspension of function in large areas of the nervous system during normal sleep.

PHYSIOLOGICAL DIGEST.

As has been already stated, the old view that the neuron body ("nerve cell") is the sole source of nerve energy must probably be abandoned. In its place we have the more tenable doctrine that this cell-body is chiefly, if not entirely, "trophic" in function; subserving the nutritive requirements of the cell-processes, while they in turn are busy with the higher, if not more im-

portant duty, of converting various stimuli into nervous activities" *. This implies an activity of the neuron-processes which can only be dynamically accounted for on the theory of inter-molecular and inter-atomic motion. It is thus in harmony in a physical sense with any other force. The idea of a "flow" of energy or a nerve "current *per se*" is of course technically untenable in the present state of our knowledge, as it is in physics generally. The term will continue to be used, however, in a conventional sense as the most convenient phraseology, though an entirely erroneous conception originally.

As to the causes that initiate or direct this inter-atomic or inter-molecular motion they can be none other originally than stimuli from without, acting primarily upon the ultimate peripheral arborizations of neurons.

In other words, it is exceedingly probable that nerve elements have no spontaneous or selective activity of their own, but like all protoplasmic bodies they simply possess the power of responding to external influences. Hence even consciousness itself is but a reflex process in a dynamic sense.

The conclusions of Schafer[†] are:

(1) "Every nerve cell (neuron of Waldeyer) is a structural element anatomically isolated but physiologically connected.

(2) Physiological continuity is due to ramified processes and contact of these with (a) other processes; (b) other neuron bodies.

(3) That the same nerve impulses do not necessarily pass from one element of a nerve chain to the next but that more probably new impulses, often of different rhythm are generated in the successive elements of the chain."

To these I would add: Impulses do not necessarily generate functionally visible impulses, but may be transformed into "potential energy" (in storage neurons) e. g. memory, inhibition, psychic processes generally.

These conclusions involve as well as emphasize the important conception that brain efficiency (potentiality)

*. "We can no longer think of nerve cells as the sources of nerve energy, as parts of a divided "nerve battery" whence nerve fibres conduct the force produced. They are the vital elements in the machine, but they have nothing to do with its dynamics. Into the protoplasm of the cell pass the fibrils which conduct nerve energy; through it they course unbroken; from it they pass, contiguous, as the elements of the axis-cylinder of a nerve fibre."—Gowers: Dynamics of Life, p. 47.

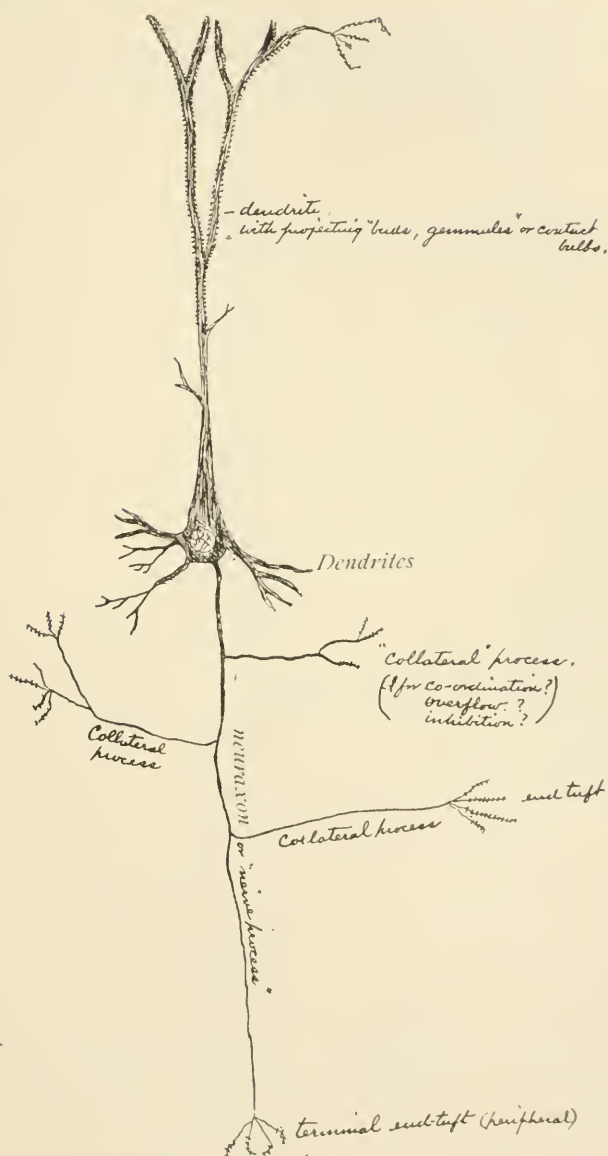


FIG. 1.—The Neuron of Waldeyer. A pyramidal neuron of the motor cortex. (Modified from Schafer.)

depends directly on the number and complexity of neuron ramifications and on the completeness of their inter-relations by means of which are brought about the varied and complex activities of which the nervous system is capable. Mere size or weight of mass is of minor importance.

PATHOLOGICAL CONSIDERATIONS.

The various hypotheses which have been advanced to account for the location and nature of the Epileptic convulsion, e. g. the theories of "special convulsive centres" (Brown-Séquard, Schiff, Nothnagel); of "epileptogenous peripheral zones" (Brown-Séquard and others); of "induration of the cornu-ammonis" (Meynert, Sommer, Bourneville and others); of anæmia and hyperæmia, hypertrophy and atrophy of the cerebral convolutions have finally given way one by one to the conclusions, almost universal at the present day, that (1) the actual origin of the epileptic convulsion is in the cortex cerebri¹⁶; and (2) that its nature is an "explosive discharge" in "unstable nerve tissue."

The remarkable chemical complexity of nerve tissue, composed as it is of some three hundred or more different elements and compounds has been invoked by Gowers² and others, as a possible or probable explanation of the epileptic "explosion." While this deserves great weight in any consideration of the subject, yet it seems hardly necessary to consider it the sole or even chief cause, until the possible anatomical and physiological factors have first been exhausted.

So long as the so-called nerve-cell (now neuron-body) was considered the ultimate beginning or destination of the axis-cylinder constituents, the alpha and omega of nervous activity, it was quite natural to seek within it for the actual cause of epilepsy and other convulsive phenomena; and we have consequently the prevailing views of their ultimate pathology as an "explosive discharge" in "unstable nerve cells of the cortex cerebri." It is difficult to see why a tissue confessedly imperfect in chemical structure, and presumably weakened in vitality, should be accused of acting with such undue violence.

The researches quoted in preceding pages, however, carry the ultimate fibrillæ composing the axis-cylinder *through* the neuron-body, to finally ramify in various "neuro-plexuses," composed of multitudinous interlac-

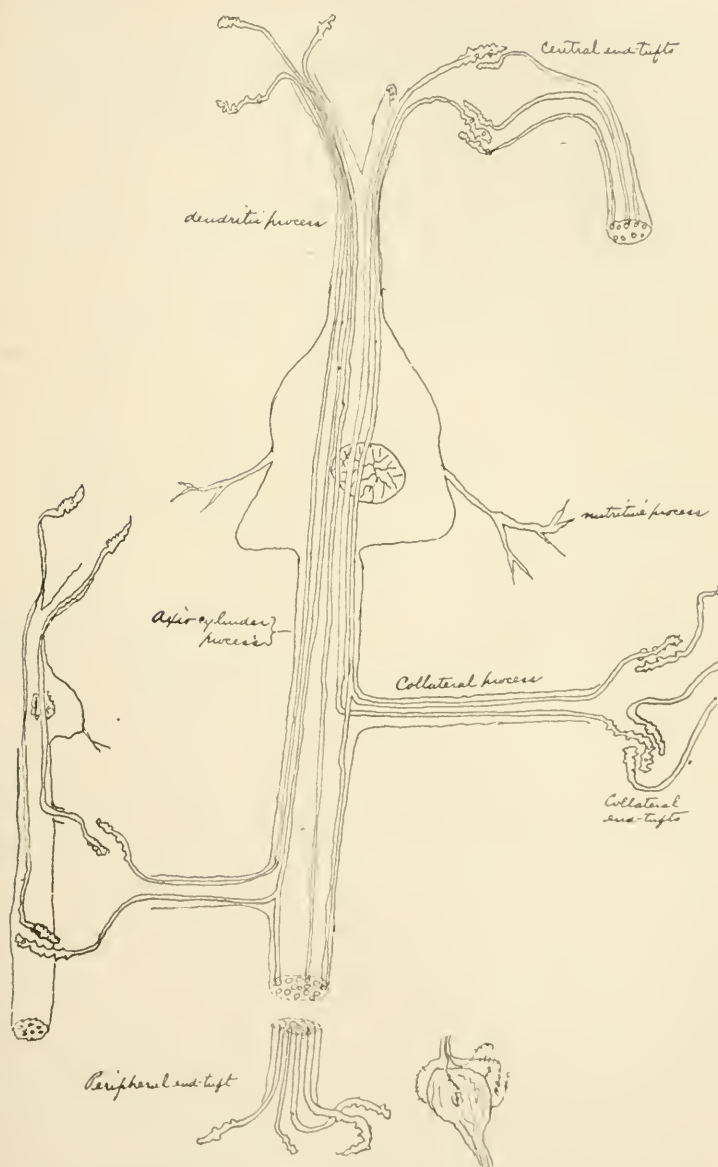


FIG. 2.—Hypothetical Neuron with bifurcating tubular fibrillae.
(After Schultze and Schafer (modified).)

ing "end-tufts" with their contact buds or gemmules which occupy the regions formerly included under the comprehensive term "the spongy gray matter;" a very poor name in the light of our present knowledge, since it applies an irregularity of structure and of relations which is quite at variance with the complexity and nicety of function we know it to possess.

In this microscopic jungle in which each individual twig and bud are essential to the perfection of the whole, we must seek, in the opinion of the writer, for the ultimate demonstrable lesions of epilepsy and other convulsive disorders, including the choreas, the hysterias and even the convulsions of toxic origin such as uræmia.

This brings us to the subject of the functional nature of cortical activity in general, and its relations to epileptic and other convulsive phenomena. While for clinical purposes the present day doctrines of cerebral localization probably rest upon a firm foundation so far as they go, it is extremely probable that the most important action of the cerebral cortex may be summed up in one word, *inhibition*, a functional entity whose existence we cannot doubt, however little we may know of its ultimate processes. In other words, what passes current for a "centre of action" is, in most cases, a centre for preventing, checking, directing, controlling and combining various activities which might otherwise occur but in different order or intensity. The strongest confirmation of this view, perhaps, is furnished by the now famous dog of Goltz' which, deprived of its cerebral hemispheres lived for eighteen months. "This dog was able during its lifetime to employ its limbs in walking, running and standing; he perceived tactile irritation of all parts of the body, and could be awakened from a deep sleep by these excitements or loud noises. He possessed a distinct sensation of the position of his members, and could unquestionably be incited to adaptive activity by such sensory stimuli. Nor was he totally blind, though it could not be proven that he was so affected by visual sensations as to modify the position or movements of the body. It was evident that hunger and gustatory sensations remained. The animal was profoundly imbecile, and it was impossible to enter into any sort of personal relation to him. No expressions of joy or fear escaped him. In restless and unvarying round he ran in his cage. With the exception of the gradual reacquirement of the power to feed himself he never

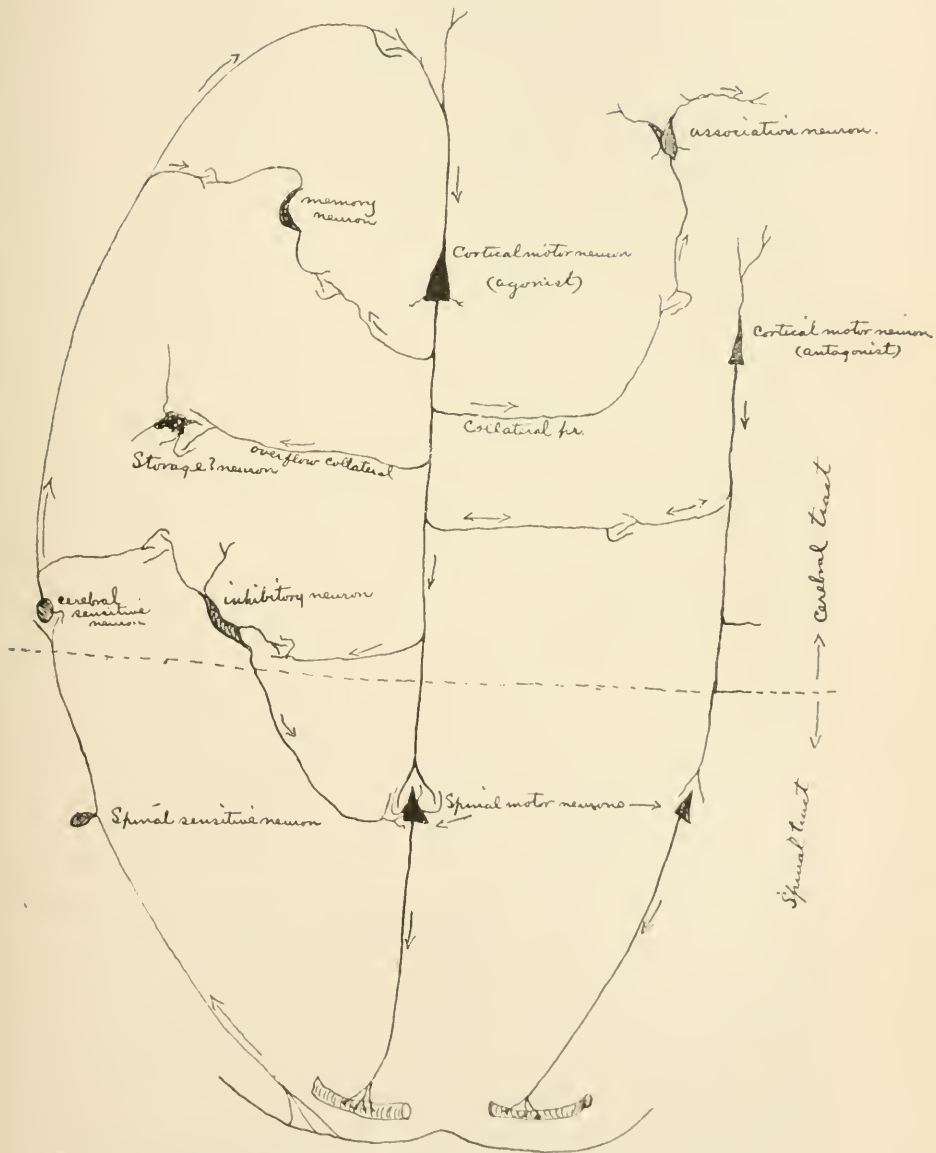


FIG. 3. Hypothetical sensorimotor are and connections.

learned anything. Every trace of methodical activity was lost. The most remarkable deficiency resulting from the removal of the cerebrum was the suppression of all expressions which betray understanding, memory, reflection and intelligence in the animal. On the other hand those faculties remained intact which could be exercised without these functions, such as a certain degree of motor powers, sensation and general irritability."

Inhibition—the dynamic expression of a combination of functions which includes understanding, memory, reflection and intelligence is, without doubt, the highest and most important function of the cortex in a motor sense at least. Abolish this action *without destroying others*, and every passing breeze would set up in us its own convulsion, of greater or less degree; much as the passing circus actually does in the average small boy with his undeveloped inhibitory mechanisms. Any interference with so important a process can hardly fail to be attended with more or less startling effects as regards the phenomena of neuro-dynamics in general.

The only reason probably that Goltz's dog above referred to did not develop epilepsy, was that the *entire* cortex was removed, thus converting him into an automaton, not subject to the varying excitations which bring out the full activity of the cortex. On the other hand we may note that a disease which destroys the cortex piece meal so to speak, as for example, parietic dementia, is peculiarly liable to be attended with convulsive phenomena closely resembling epilepsy.

In this connection we may note also, the observations of Dercum¹⁷ (quoted by Hare¹⁸), who, in autopsies on twelve cases of epilepsy, found in nearly all, evidences of "mechanical hindrance to brain development," besides other pathological changes.

Further, the great preponderance of epilepsy in early life (75 per cent. under twenty years), a period during which the demands for inhibition are increasing at a rapid rate, would of itself indicate a failure on the part of inhibitory mechanisms to keep pace in development with the activity of those which it is their office to control. As Sachs²⁰ states, "The removal of inhibition through disease of such (higher cortical) centres liberates the energy of the lower centres."

In the dynamic sense, therefore, all that is necessary to the production of a convulsion (*i.e.*, an unregulated motor discharge) is an incoming "sensory" impulse, ex-



FIG. 4.—Pyramidal motor Neuron with incomplete collaterals impairing inhibition, association, motor memories, storage, etc., and by setting provision for overflow — increasing the outgoing "tension" or "pressure" in the axis-cylinder. (Diagrammatic.)

citing an out going "motor" discharge, which discharge is not inhibited. In other words *cannot avail itself* of a proper number of "shunting," regulating or distributing mechanisms. The discharge being thus unrestrained by the proper inhibitory action, the phenomena of exhaustion naturally follow.

Our attention is naturally directed at this point to the "great pyramidal" neurons of the motor area of the cortex, generally conceded to be the mechanisms most directly concerned in the initiation of voluntary movements. What are their connections—known or inferred? and what bearing may they have on convulsive phenomena generally?

A hypothetical scheme of mechanisms (necessarily neurons or parts of neurons), probably required to produce the simplest motor action under normal circumstances is presented in Fig. 3.

It is quite evident that hereditary or developmental defects, trauma, toxins and degenerative processes,—in short, all the recognized causes of epilepsy, would tend to fall with especial primary severity on the *terminations* of the neuron-processes, in accordance with the pathological law that those portions of the neuron ramifications farthest from their source of nutrition (the neuron body) are the first to suffer from such causes as impair the vitality of the neuron body, or the neuron as a whole.

The collateral processes, on account of their length, delicacy and general direction, would be especially liable to damage of various degrees, the consequences of which must impair their "conducting" or functioning capacity, whatever that may be. Further, it would seem, from a dynamic standpoint, that the molecular play which we commonly call the "nerve current" must be productive of a certain "stress, tension, or pressure" in the axis-cylinder along which it passes. Should this stress attain undue proportions in any neuron, one of two events would seem likely to occur, namely: 1. A distribution to other areas, through contact with other neurons, which distribution may subserve purposes of memory, inhibition, or "conservation of energy." The most feasible route by which this "shunting" might occur would appear to be the "collateral" processes. (See Fig. 3).

2. Any failure in the efficiency of this supposed "shunting" process would be attended with undue expenditure of energy on lower centres, resulting in a convulsive action of the centre so over stimulated (see Fig.

4). In the illustration here presented only the motor aspect of the subject is considered, for the sake of simplicity. It is quite evident, however, that processes *other than motor* may readily be involved, thus accounting for the varying "types" of epilepsy, sensory, motor, psychic, which probably depend on the region damaged and the functions of the mechanisms there situated. That the defects referred to should preponderate in the collaterals of the great pyramidal projection tracts—is rendered probable by the fact that these are the last to reach full development (myelinate). And it seems quite conceivable that defects in myelination of collaterals would have in many cases the same influence as deficiency of collaterals themselves.

The well-known hereditary inter-relations of chorea with epilepsy, also suggest an homology in causation, viz: that the lesion in chorea is of a similar nature, but less widespread, perhaps oftener a mere retarded development in collateral arborizations, rather than an absence or destruction. This view also accounts for the curability by time and hygiene (often without drugs) of most cases of juvenile chorea, and for the incurability of those cases developing in adult life, where the defect is more likely degenerative in nature.

In both diseases the essential dynamical defect is a lack of *inhibition*, a process pre-eminently characteristic of the cortex and almost necessarily dependent on a wide spread inter-communication of the neuron processes.

The "spread of the discharge from centre to centre" and the "tendency to recurrence" of the paroxysms, have been much commented on as peculiarities of epilepsy.

The former is readily accounted for on the foregoing basis, when it is remembered that defect in collaterals means also defect in their myelin sheaths, the insulating material, so to speak, of the neuron. As for the latter, an increasing deterioration of collaterals already affected with the consequent involvement of others would seem to be a sufficient explanation.

An objection that may be raised to the views here presented, is the therapeutic one, that remedies often lessen the frequency or severity of the attacks. But what are these remedies, and what their physiological action? Simply and solely drugs that lessen the incoming sensory excitation. The bromides of the alkalies, the vegetable depressants, the coal tar anæsthetics, etc.

Did any one ever know them to absolutely cure a well-defined case of prolonged duration? On the other hand cases occur of undoubted epilepsy which recover permanently under careful hygienic and nutrient treatment, and to whom some drug or other may have been administered. These cases, if sifted, will be found mostly, perhaps always, in the early developmental period of life and this would suggest that they were simply *examples of delayed development of collateral or other processes*, which has been finally completed through the hygienic measures adopted and *time*.

As may readily be seen by all familiar with the technique of neuro-pathological investigation, even with the latest additions to our resources, the difficulties in the way of an actual demonstration of these supposed defects in collateral processes and end-brushes are enormous, yet we cannot say insurmountable; for who can set a limit to human achievement in this direction after the advances of the past ten years? May we not hope that the obstacles, great though they seem, may yet yield to the persistent, painstaking efforts of future investigators, as apparently equally difficult problems have yielded in the past.

GENERAL SUMMARY.

The foregoing considerations, anatomical, physiological and pathological, would appear to the writer to justify the following propositions as a working hypothesis:

(1) That epilepsy, the choreas and probably most convulsive disorders, are the dynamical expression of an *inhibitory insufficiency*; not indications of an over production of nerve energy, nor "explosions" due to a "molecular instability," *per se*.

(2) That the cause of this inhibitory insufficiency is to be sought for in the end-brushes of collateral processes of various cortical neurons, the situation varying with the "type" of the disease, whether sensory, psychic or motor.

(3) That the defect consists most probably, in a *structural incompleteness* (small capacity, defective insulation imperfect contact), or a *numerical deficiency*, or both, in the collateral processes of the neurons referred to.

(4) Defective collaterals may favor occurrence of convulsions in two ways: (a) by impairing connection with other neurons (inhibitory, storage?); (b) by increased

"resistance" to overflow currents, causing temporary over-charging of motor axis-cylinders.

The above conception of the anatomico-dynamic basis of convulsive phenomena I would call the "collateral theory."

From the point of view here taken it is quite obvious that cases of epilepsy would naturally be arranged under three heads, each of which would present important differences as regards prognosis and treatment.

(1) *Primary* or *developmental* type, comprising the "idiopathic" cases under twenty years of age. In these, the younger the subject and the better the heredity and environment, the better the prognosis under intelligent treatment. Ultimate result depending on the possibility of promoting further and equable development of "collateral" communications with inhibitory mechanisms.

(2) The *accidental* forms: Those due to trauma, syphilis, lead, toxins, etc. The prognosis here varying with the longer or shorter duration, and the possibility of removal of the cause; being always favorable so long as permanent structural changes in collaterals and inhibitory mechanisms have not occurred.

(3) The *degenerative* type: The rare cases of adult life and old age (not "accidental") belong in this category.

Here palliation only is to be expected, as in degenerative changes elsewhere. In all forms the rational indications for treatment are: To lessen the incoming sensory excitation by diet, hygiene, occupation, medicines, and so diminish the intensity of motor responses or other "discharges," which are not provided with suitable "overflow" and "inhibitory mechanisms."

In short, to take off pressure, favor nutrition and educate those elements which remain undamaged.

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PITTING ABOUT THE HAIR-CUPS, A TROPHIC CHANGE OF THE SKIN IN CERTAIN NER- VOUS DISORDERS OF CENTRAL ORIGIN.

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FOR several years my attention has occasionally been drawn to a peculiar appearance of the skin of the extremities in a certain limited class of cases. By longer study of the matter I had hoped to more fully elucidate the subject. Though not entirely successful in this, it may be proper to put on record the facts so far gathered.

The peculiarity itself is so slight, and shads off so easily into normal conditions, that it may well prove at best a rather elusive symptom.

So far as accessible descriptions go, or as several dermatological and neurological friends have been able to recall, nothing of just this kind has ever been recorded.

DESCRIPTION OF THE PITTING ITSELF.

(a) Its local character.—The change is so limited a matter, that it is but too easily overlooked. Doubtless this is the main reason why it has failed to receive attention. At the same time when once seen, it is easily enough recognized in fully developed cases.

It is, when present, invariably found about an existing hair or hair-bulb. There may be a slight tendency for the hairs to fall out, but not to the extent that any pronounced alopecia results. The respective hairs often do not appear to have fallen out at all. But they do not look healthy under the microscope, and snatches of epidermis may come away when they are pulled out: though this is not unusual in normal conditions.

The general skin over these parts may be somewhat crinkled, perhaps only from the muscular shrinking.

The term "pitting" but partially describes the change. There is an areola-like faint depression, frequently oval

in the direction of the lines in the skin, though it may be irregular or circular in form, about the exit of each hair. In a typical region, no hair-exit escapes. Moreover the depression is a trifle paler in tint than the surrounding skin, almost like a minute cicatrix. It is, however, perfectly soft to the feel, and gives no further evidence of being a true scar. Sometimes, however, a case shows no change in tint from its surroundings except the shadow-effect. The markings can hardly be called pock-like, though on oblique illumination the skin has a perforate appearance. Normally there is a little sloping of the skin-surface towards a hair-shaft, but here this flattens out to a shallow areola. A magnifying glass may bring it out better, yet it interferes some by limiting the field. It is not of a nature to be satisfactorily photographed, and even an artist finds difficulty in properly sketching it.

The actual size of individual pits may reach a diameter of perhaps one-half mm.

(b) Its distribution over the body.—Usually it is more marked on the lower extremities, when present on both upper and lower, but may occur predominantly or exclusively on either. Those on the lower extremities are on an average larger and apparently deeper. Hence the question of its presence or absence is more difficult to decide in the case of the arms. Here it is the outside of the fore-arms that shows the pits best. Rarely they have been discernible on the front of the upper arms as well. In the lower extremity they are principally noticeable on the front and outer side of the leg a little below the knee; and again on the front of the thigh up from the knee. While they may be more generally present over the lower extremities, it is usually in the specified territories that the largest pits in any part of the body can be found.

From these regions where the appearance is most characteristic it shades off into smaller and questionable pits, and then to the normal hair dents.

In regions of more pronounced hair-growth, as the scalp or chin, nothing of this sort has ever been apparent; though my list of cases does not include any of bulbar paralysis. It is always over muscular areas.

(c) Course.—As the primary disease advances and the skin acquires somewhat more the appearance of cracked glass, the pitting over the more prominent parts may disappear or become scarcely distinguishable. Around the borders of such advanced regions it may still be evident.

A fuller knowledge of the stage of the primary disease at which this manifestation appears, is desirable. So far as I have been able to observe, it is apparent as soon as the other diagnosis can be made.

All these patients had passed the period of youth. They were from 40 to 50 years of age or thereabouts.

DISEASES IN WHICH IT OCCURS.

These are best typified by progressive muscular atrophy. In this trouble when on the basis of chronic anterior poliomyelitis, the pitting has never been absent. (See Appendix).

One of the earlier cases was that of a patient who had been referred to me by Dr. Seguin for some special treatment. On calling his attention to the appearance, he wrote regarding it as follows (under date of July 5, 1889):

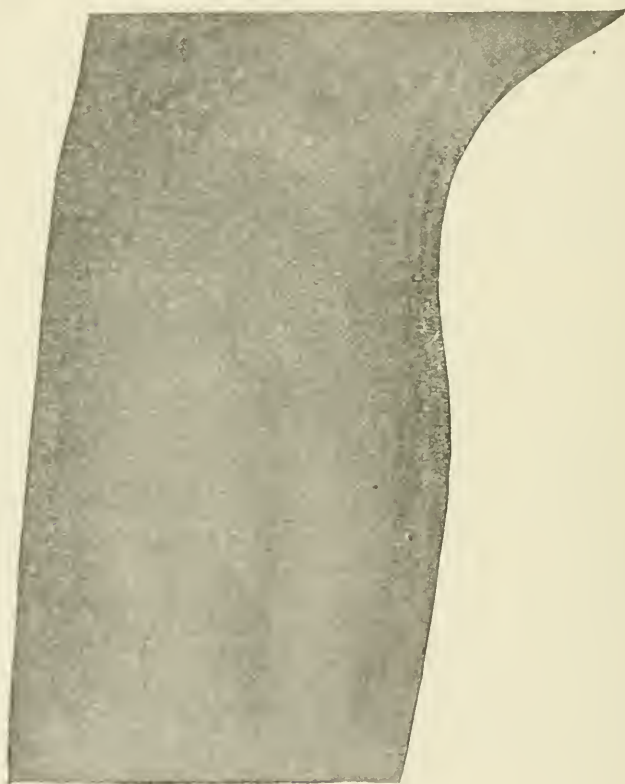
"The matter of observation you submit is highly interesting. With the naked eye, and better with a strong loupe, I verified your observation of a cup-shaped depression about many hairs on thighs. This is certainly worthy of fuller observation and of publication. Have you studied the skins of any healthy persons with reference to this state of the follicular area?"

Dr. Seguin's kindness in thus corroborating my supposed find, could, I felt, be best recompensed by scrupulous care in establishing the fact and its relations thoroughly.

In certain other nondescript cases, some of which are appended, this appearance was more or less marked. On the whole these irregular cases are rare and have evidently some chronic atrophic complication that may explain the pitting in so far as bringing it into relation to the more common cases, those of ordinary progressive muscular atrophy.

There was one particularly obstinate lead case (paralysis of forearms with atrophy and contractures) in which slight pitting could be made out over the arms and forearms; legs were free of it. Although I was able to follow this man for several years, he never fully recovered. In view of this latter, and the further fact that central changes have occasionally been found in such lead troubles, this one case does not suffice to upset the conclusion based on all the others, both positive and negative, that the real cause must be elsewhere than in the peripheral nerves.

There was another man (old syphilitic, seen by courtesy of Dr. Duryea at the Kings County Hospital, in July, 1889) with advanced so-called spastic tabes. Great general shrinkage of musculature (my note says "evidently amyotrophic lateral sclerosis"). The cups were de-



Pitting about the Hair-fallicles, from outer side of left Leg, just above the Knee. Drawn by T. H. B. O. Stucke, and photographed by E. B. Dudley.

monstrable on arms and legs, very distinct over the calves, especially on the left. These were quite different from the atrophic scars often seen in syphilitics.

In cases of grave hysteria that have run a considerable period and induced much wasting, there are sometimes scattered pits. These are rather larger than the

usual form, and so isolated that it is doubtful if they have any relation to the kind here described.

My illustrative drawing is from the following case which, as it also happens to be somewhat irregular in type, may be given more in detail.

The patient was an Irishman; carpenter, 50 or more years of age, seen in the service of Dr. Delatour at the Norwegian Hospital, November 26, 1895.

He had been brought in partially unconscious two weeks before. Had vomited some at that time. It was said that he had fallen through a floor (15 ft.) He had a scalp wound at the vertex, but examination showed no fracture, and the cut is now healed. On the third day it was first noticed that the right pupil was the wider, that the tongue came out to the left, and that the reflexes were increased on the right. He was stuporous or wandering, but has gradually come to talk connectedly. Most of this time has passed urine and feces in bed.

Is evidently weak all over. Arms thin but not especially atrophied, do not show any of the hair-cup pitting. Approximate grip, r. 39, l. 26 (much too low for a carpenter).

Can now stand and walk, though somewhat weak and tottering. Can turn around (eyes open, as he is too stupid a chap for any more exact testing) quite as well as he walks. Knee-jerks increased in force and area elicitable. Plantars present. There is a very flabby and atrophied condition of each calf, and only slightly less so of each thigh. The left knee (shown in the sketch) was considerably swollen and distorted—essentially an enlargement of the synovial pouch above joint anteriorly. On front of each leg a little below knee on the outer side, and over the segment most atrophied, are exquisite pilary pits slightly oval in outline.

He tells of at least two previous attacks, occurring respectively, six and three years ago, which he thinks were like the present one. At the one six years ago, he was sent one evening from a factory for some hardware. On the way back something happened to him. He was taken to a police station where his case was entered on the blotter and attended to. The occurrence three years ago was, he thinks, similar, though of neither is he able to give any more exact description.

CONDITIONS IN WHICH THIS PITTING IS NOT OBSERVED.

1. In health it is never found. I have been on the look out for it long enough now to be reasonably positive on this point.

2. In general it may be said that it does not occur in any strictly peripheral nervous affection.

3. Though many cases of old infantile spinal paralysis have been inspected, it has never been present.

4. Multiple neuritis. Many cases due to alcoholism, syphilis, malaria, sepsis, etc., have failed in every instance to show any trace of pitting. Lead cases have also been negative, with the one exception given above.

5. Glossy skin. In the several cases of this that have been under observation, not only on the hand, but the similar condition of the lower extremities, there has been no suggestion of the pitting. Other forms of local neuritis have likewise been negative.

6. Spastic spinal paralysis. No real pitting. In the so-called amyotrophic form it presumably occurs.

7. Atrophies due to disuse, old hemiplegia, fever or other systemic cause, etc., are also unattended by any hair-cup markings.

8. In tabes there is none. And so far as observed the same holds in disseminated sclerosis (unless one of the above cases be of that type). Still, each of these forms might possibly be complicated with such an atrophy as to favor pitting.

9. Absent in one case of pseudo-hypertrophic paralysis with atrophy.

These specific classes I have taken pains to exclude in order more exactly to define the occurrence of the symptom and correspondingly enhance its value. In other and less relative forms of trouble it has also never been noted, though further enumeration is scarcely necessary.

Certain points regarding this matter are as yet somewhat speculative.

1. Its local pathological anatomy.—To what changes in the cutaneous tissues is this manifestation due? As yet I have been unable to secure a piece of the affected skin for histological examination.

The erector pili in such a field are probably unaffected. A chilling of the area will often bring all the bulbs and hairs to prominence. Besides, it does not involve specially hairy regions.

That it is of purely mechanical origin, as *e. g.*, from loss of underlying structures, is also improbable, since in other cases of equally advanced atrophy nothing of the kind is observable. And various cases have shown that it is not a result of massage.

So far as determined, there has never been any inflammatory troubles about the hairs and no process leaving this as a true scar.

2. Interpretation.—What are the relations to the primary disorder? The tissue changes when worked out may give a clue to the significance of the phenomenon and to the nature of the central trouble. There is nothing to show that it is a manifestation of the sympathetic or peripheral nerves.

A comparison with known changes and affections of the skin fails to throw any light. In even so well recognized a matter as leucoderma, about all that seems to be known is that it is due to 'nervous influence.'

Here it might be explained that the unusual term "hair cups" was used in the title, that the exact nature of the pitting might not be prejudged. The latter is a fact whether it be about the hair follicle or involve it.

3. Its clinical value.—Apparently the pitting suffices to show trouble in the spinal cord (in particular of the anterior horns) and hence is of value in differentiating central from peripheral disease. It is well recognized that our present methods of distinguishing these when associated with wasting, do not always suffice. Its special applicability is in determining whether a given atrophy is due to a gradual affection of the precornua, or to some quite different cause. Prognostically the pitting, of course, indicates a grave disorder.

APPENDIX.

Though the common descriptions of chronic anterior poliomyelitis give little recognition to material changes other than those in the muscle-nerve-apparatus, there are observations showing that other tissues may suffer in this disease.

Alterations in the nails and abnormalities in the perspiration, especially differences in the two sides are mentioned by Hamilton (Nerv. Dis., 1879).

"The skin is not infrequently implicated; and in these cases both the epidermis cutis and subcutaneous tissues are affected" (Ross, 1881).

In old poliomyelitis I have occasionally noted slight changes in the skin, though they are quite inconstant.

1. Striae atrophicæ over abdomen and thighs in a man of about 40 years. He was very positive that these antedated, at least in their beginning his muscular atrophy.

2. Very protracted healing of contusions and resulting slight ulcer-

ations on legs, where, as was claimed, such wounds had formerly healed with the greatest rapidity.

3. In one man, previously affected with a varicose vein of one leg, the smaller cutaneous veins over both lower extremities became marked as the disease progressed. Hammond (1891) says, "The cutaneous capillaries are usually relaxed, and hence the skin over the affected parts is discolored by the passive engorgement.

4. Other evidence of a special vulnerability of the tissues might be added, such as alveolar fistula. And Remak has described painful swellings (arthritis nodosa) of the smaller joints in the early stages of the disease. But this is getting far afield.

DISCUSSION.

Dr. OSLER, of Baltimore, asked whether there were any relations observed between these trophic spots and the *lineæ albicantes*, which, though caused, as a rule by pressure as in pregnancy, may, especially in young persons, occur spontaneously, and are without any significance. They are not very uncommon after the fevers, particularly on the skin of the abdomen, occasionally on the shoulders, or on the thighs. I saw last year a man with the most extensive areas of atrophy of the skin of the back following a prolonged attack of typhoid fever. At a distance he looked as though he had had a severe application of the 'cat-o'-nine-tails.'

Dr. F. W. LANGDON, in discussing Dr. Browning's paper, said: I merely rise to suggest the possibility of these cases being due to an atrophic condition of the erector pili muscle, and also to ask whether the association with amyotrophic lateral sclerosis would not point in that direction.

Dr. F. X. DERCUM and Dr. WILLIAM G. SPILLER, of Philadelphia, read a paper on

A CASE OF SYRINGOMYELIA, LIMITED TO ONE POSTERIOR HORN IN THE CERVICAL REGION, WITH ARTHROPATHY OF THE SHOULDER-JOINT AND ASCENDING DEGENERATION IN THE PYRAMIDAL TRACTS.

(ABSTRACT.)

Three years after a strain of the back, the patient began to suffer from pains in the legs, a band-like pain about the lower part of the chest, weakness in the lower limbs, and a spastic gait. Complete paraplegia with contractures, more marked on the right side, wasting of the lower limbs and paralysis of bladder and rectum developed later. Cutaneous sensibility was lost in the legs and upon the trunk as high as the nipple on the right side and a little above the umbilicus on the left. The sense of temperature was absolutely lost over the right arm, the right shoulder and the right side of the neck, and also upon the adjacent part of the right side of the trunk above the nipple line. There was some analgesia of the right arm. The right shoulder joint began to swell and from rupture of the capsular ligament cellulitis with redness and local heat was produced, but with little or no pain. In extension the humerus assumed the position of a subglenoid luxation. Death was due to exhaustion.

At the autopsy the capsule of the right shoulder-joint was found much thickened and roughened on the inner surface. The head of the humerus had disappeared, the bone having been eroded to some little distance below the surgical neck. A cystic tumor was found in the axilla, containing a friable fatty material. The surface of the glenoid cavity was much eroded, roughened, and porous; it was abnormally large and extensive bony deposit had taken place along its edges. The coracoid

process exhibited a thick and firm accretion around its entire edge.

Sections were made from the level of nearly every spinal root and from many spinal ganglia.

By the microscopic examination degeneration was found of the crossed pyramidal tract as high as the substantia reticularis of the second cervical segment and of the direct pyramidal as high as the motor decussation upon the right side, and for a short distance of the crossed pyramidal upon the left. This was believed to be ascending on account of the following facts:

1. Absence of any microscopic lesion above the medulla oblongata.

2. Degeneration of the crossed and direct pyramidal tracts on the same side of the cervical cord, intense in the lower cervical region near the lesion, and diminishing gradually in intensity in the cervical segments, and finally becoming very indistinct in the upper cervical region.

3. Absence of all degeneration in the anterior pyramids.

4. Long duration of a chronic process.

While certain association fibres may be considered degenerated in these columns, the entire antero lateral column contains such fibres, and the degeneration was notably in the area occupied by the crossed and the direct pyramidal tract. This ascending sclerosis was probably in greater part due to destruction of motor fibres deprived of their function.

Degeneration of the direct cerebellar tracts and of the tracts of Gowers was traced as far as the inferior peduncles of the cerebellum.

Intense pachymeningitis was noticed from the second lumbar segment to the exit of the third dorsal roots.

The arthropathy of the right shoulder was not due to any special changes in the cord or spinal ganglia.

The posterior roots were not affected even when the pachymeningitis was most intense; the anterior at one part of the dorsal cord were degenerated.

In the entire cervical region as high as the second cervical segment the cavity was limited to the right posterior horn.

The gliosis extended from the extreme end of the conus terminalis to the second cervical segment. The microscopic examination explained satisfactorily the symptoms observed in life.

DISCUSSION.

Dr. JAMES HENDRIE LLOYD, of Philadelphia.—We can now diagnosticate syringomyelia with great certainty, and we can refer to it with great success as a localizing lesion. This case was recognized before death and the cavity was localized. It is worth while calling attention to the fact that this case was from our Blockley clinic, and that five cases have been diagnosed at the bedside in that hospital and followed up by careful post-mortem studies within the last few years. This is in remarkable contrast with the claim made by Dr. Gray in the first edition of his book, that syringomyelia cannot be diagnosed with accuracy. At the time he wrote that chapter I know that my own case, with many illustrations, as well as many foreign cases, was on record. There are several interesting points about the case reported here to-day, some of which have been demonstrated before. Take, for example, the arthropathy. This complication, if I mistake not, is almost as common in syringomyelia as in locomotor ataxia. I had a case in 1892 with distinct arthropathy of the left ankle-joint. The ascending degeneration in the lateral tract is an interesting observation made by Dr. Spiller in this case. In my own case, published in 1893, I found this ascending degeneration and traced it through the decussation and into one pyramid, which was completely sclerosed. I called especial attention to this fact, and illustrated the condition in a pen and ink drawing. Syringomyelia has now become one of the simplest affections to diagnose and I have no doubt that we shall find that it is one of the most common lesions of the spinal cord.

Dr. B. SACHS, of New York.—I endorse what Dr. Lloyd has said regarding the feasibility of accurate diagnosis, and I think everyone has fallen into the habit of diagnosing this disease during life. I do not think we can draw the line with regard to the sensory symptoms quite as closely as has been stated, for at times there is not a very sharp differentiation between the various forms of sensory disturbances. This has been made evident in at least two of my cases, one of which is still under my observation. One is a case of undoubted syringomyelia, but the sensory symptoms are not as distinctly differentiated as they are generally supposed to be. There may be a considerable variability in the symptoms, and this is especially true of those cases in which the symptoms were typical at the beginning. During the further course of the disease a number of sensory symptoms disappear, so that sometimes we have cases of syringomyelia in which there is almost complete cessation of sensory function, due no doubt to the gradual enlargement of the central cavity.

Dr. KNAPP, of Boston.—I saw not long ago a typical case of

syringomyelia, originally reported to this Association by the late Dr. Jeffries. When we first saw the case there was no impairment of tactile sensibility; since that time there has developed some impairment of tactile sensibility in the arm which at first showed only loss of sensibility to pain and temperature. I have also noted some loss of tactile sensibility in other cases. I agree with Dr. Sachs that the diagnosis of typical syringomyelia is easy, although the diagnosis in a typical case may be difficult. Although we see cases not infrequently, it is of course distinctly less common than tabes.

DR. L. C. GRAY, of New York.—There seems to be some misunderstanding about my position in this matter, as I never said the disease could not be diagnosed. I stated that the literature was based upon an article by Bäumlér, and in going through that article I could see no evidence of the disease having been diagnosed antemortem. When I found that the Philadelphians had attempted to make a diagnosis and had succeeded, I stated so.

DR. M. A. STARR, of New York.—The first case of syringomyelia to be published in this country was from my clinic in 1887. The woman had been under my care for three years and the case was supposed to be one of progressive muscular atrophy. I do not think this disease a very rare one, as I have had three cases since October and have shown them to my students. The disassociation of sensation associated with the progressive muscular atrophy and the trophic disturbances are quite characteristic. Dr. Peterson had other cases at the clinic during the past year. An interesting fact that in one case there was coincident with the syringomyelia acromegaly. All these cases have been put on record and they were unmistakable. The diagnosis is simple enough, and the disease should be easily recognized. Sometimes, however, there is some difficulty in diagnosis. This fact is illustrated by a young woman whom I saw first four months ago. I do not know whether she is suffering from syringomyelia or from hysteria. She has many hysterical symptoms, and she has taken great pleasure in amusing the doctors by making incisions in her right hand, which she does without pain. There have been other trophic disturbances of the hand. One of them was an ulcer upon the finger and the subsequent loss of the first phalanx. Yet another ulcer promptly healed when put up in plaster so that she could not get at it. This girl has no loss of tactile sense, but has entire hemi-anæsthesia to pain and temperature sense. I am undecided what is the matter with her in view of these hysterical manifestations, and this is an interesting question of diagnosis which I do not think has been brought up before. If we judge from the objective symptoms, we should say she had a syringomyelia, otherwise, we should say hysteria.

DR. J. J. PUTNAM, of Boston.—I had an interesting case of syringo-myelia under my observation which began in the dorsal region. Thinking that there might be a tumor external to the cord, Dr. Keen operated at my request. We found the cord apparently enlarged and discolored and looking as though it was the seat of a tumor. The patient's condition was distinctly improved by the operation. The dura was left without being covered and no harm has come from it. We have recognized syringo-myelia lately in Boston with increasing frequency. I think in children the diagnosis is not always easy, as one's attention is not invariably called to the sensory symptoms by the parents themselves, and careful search may be necessary to indicate their presence.

DR. GUY HINDSDALE, of Philadelphia.—I recently had occasion to look up the literature on this subject and found some five hundred references to articles published chiefly within the last ten years. A very large proportion of them, 3,216, were in the German language, the French came next with 155, then the English and the American to the number of 75.

It is probable that in the future we shall hear more frequently of these cases.

I wish to compliment Dr. Spiller upon the way in which he has reported the case.

DR. HUGH T. PATRICK, of Chicago.—It was stated in the paper that Gowers' tract was not traced as high as the pons, and the inference might be that it does not extend as high as this. This would be a false conclusion, as in cases such as this, of long duration, the course of the tract can be traced only by its absence, a method that is necessarily very uncertain. Experimentally and using the Marchi stain I, as well as others, have clearly traced it into the middle lobe of the cerebellum.

I was glad to hear the reader call attention to the existence of a pachymeningitis, or thickening of the membranes, co-existing with the central lesion of the cord. I have seen one striking example of this. The cord was in places almost entirely destroyed and it was impossible to say whether the destruction was due more to the internal or the external lesion. This case, by the way, had gone the rounds of the London hospitals for years as a case of hysteria. And in reference to Dr. Starr's cases, I would say that the French have shown that syringomyelia is particularly apt to be complicated by hysteria. They have also described a condition exceedingly like acromegaly that occurs in syringomyelia, but they insist that it is a spurious acromegaly and call it *chiromegaly*. There is no doubt that the tactile sense may be lost in syringomyelia. In examining some years ago what was reported as the first case of Morvan's disease in this country, and which we must now

regard as syringomyelia, we found the tactile sense distinctly impaired.

Dr. SPILLER, of Philadelphia, in closing the discussion, said: Probably the ascending degeneration is in part due to involvement of some of the associative fibres which are found in the entire ventro-lateral column, but the destruction in our case is in the area occupied by the direct and crossed pyramidal tracts; is intense near the lesion and disappears in the upper cervical cord, and is not due to any lesion above the oblongata.

We can hardly attribute this to amyotrophic lateral sclerosis. In the first place an unilateral form of this disease would be well worthy of note. It would be necessary to assume that only the fibres from the right pyramid which form the direct pyramidal tract, and only those from the left pyramid which form the crossed pyramidal tract on the right side of the cord were diseased, such a selection of fibres, would be most extraordinary. This involvement of the right direct and of the right crossed pyramidal tract can be satisfactorily explained by a lesion cutting these fibres below the motor decussation, and we have seen that no such lesion exists above the thoracic region. The sclerosis of the left crossed pyramidal tract extends such a short distance that we may properly call the degeneration unilateral, especially as the left direct pyramidal tract is not involved at all. The cells of the anterior horns in the cervical region are not diseased. There were no symptoms of amyotrophic lateral sclerosis present during life, no marked atrophy, nor paralysis of the arm, nor fibrillary contractions. The condition in the lower limbs was due to total destruction of a part of the thoracic cord.

I fully agree with Dr. Patrick that if the method of Marchi could have been employed, the degeneration in the direct cerebellar tracts might have been traced higher. This method is, of course, only useful for processes of short duration. We have tried it for the ascending degeneration with a negative result. In cases of long standing the sclerosis represents contracted tissue, and the staining merely shows to what extent normal tissue has been replaced. If the nerve fibres have been destroyed very early in life there may be no overgrowth of neuroglia.

The loss of tactile sense in syringomyelia simply means that the area of tactile fibres is involved; according to some writers, this indicates destruction of the posterior columns.

Dr. Riggs reported that in his case there was no loss of thermal sense, and complete or nearly complete loss of tactile sense. In this respect his case is complementary to ours. We have recorded complete loss of thermal sense with no loss of tactile sense in the right upper extremity.

Dr. Riggs stated that the posterior horns in his case were not involved, that there was an area of sound tissue in the columns of Burdach, adjoining the median side of the posterior horns, across which the posterior root fibres enter the posterior horns, and that the columns of Goll were much degenerated. We have found in our case the right posterior horn in the cervical region occupied by a cavity, and have not observed degeneration of the columns of Burdach in this portion.

The report of Dr. Riggs makes the location of thermal fibres for a part of their course in the posterior horns still more probable and strengthens the view that tactile fibres are to be found in the posterior columns, although it must not be forgotten that the lateral columns were not free from sclerosis in his case.

Dr. Putnam passed around slides from a case of tabes of rapid course, illustrating the position of some of the early spinal lesions, and also the position of the spinal lesions associated with numbness of the buttocks.

A CASE OF RAPIDLY FATAL CEREBRITIS, RESEMBLING CEREBRO-SPINAL MENINGITIS, WITH EXHIBITION OF SECTIONS OF THE CEREBRUM, MID-BRAIN, PONS, AND POST-OBLONGATA.

BY JAMES HENDRIE LLOYD, M.D., JOSEPH SAILER, M.D.,
of Philadelphia.

CLINICAL REPORT BY DR. LLOYD.

IT has long been a well recognized fact that cases of sporadic spotted fever occur. This purely clinical observation is based largely upon the fact that isolated cases of obscure infection arise now and then, and present certain superficial resemblances, which have led to their being included in one group and dubbed cerebro-spinal meningitis. The exact nature of the infection in these cases is still practically unknown; and, in fact, it may even be a question whether all these reported cases are due to an identical microbe. Rapid fulminating infecting is an occasional characteristic, we know, of many specific micro-organisms. Thus we may instance the germs of measles, scarlatina, typhoid fever, small-pox and even pneumonia. In the cases of all these diseases we occasionally see instances of extreme virulence, in which many symptoms in common are presented and in which the result is invariably fatal. The most common symptoms are high fever, delirium, poisoning of the cardiac and respiratory centres, asthenia, and, in the cases of the exanthems, a hæmorrhagic or purpuric eruption. Deducting these more or less familiar diseases, there remain several varieties of obscure infection, largely attacking the cerebro-spinal system, which present also some of these common symptoms, but which cannot as yet be classed satisfactorily in any nosological group. One of these is the alarming disease known as acute delirium. I once saw a vigorous young man die of this affection after an illness of but sixty-two hours. The autopsy revealed no gross lesion of any organ of his

body. The acute delirious mania of alienists—such cases, for instance, as occur sometimes in the puerperium or after gynæcological operations—are doubtless due to some form of infection whose life history is not yet well understood. Again, virulent cases of purpura hæmorrhagica occur, and present many symptoms suggestive of systemic infection. Thus the constitutional reaction, the extreme cephalalgia and rachialgia, the depraved state of the blood shown by the copious hæmorrhages from mucous and serous surfaces, and the purpuric eruption in the skin, all point to the action of some poison. The resemblances, in fact, between grave purpura hæmorrhagica and some cases of spotted fever seem to me to be far from superficial, and were impressed upon my mind especially in the case which is about to be reported. Finally, we may instance the overwhelming doses of the malarial plasmodium, which fortunately are but rarely seen in this latitude.

From these considerations it seems that one of the many great desiderata in pathology at present is to obtain more light, first, upon the distinct action of all infecting agents upon the tissues, especially of the cerebro-spinal system; and, second, to detect, describe and differentiate such of these microbes as are still unknown. In other words it has become essential for us to no longer confine ourselves so exclusively as heretofore to the mere clinical field, with all its classical descriptions and distinctions; but to undertake in every possible case to study the distinct action on the nervous and other tissue of these infecting agents, some of which apparently have not yet received even a satisfactory name. It is possible that the description of meningitis, cerebritis and even myelitis will yet have to be, in part at least, rewritten, in order to have it conform to the constantly widening field of microbial pathology.

These observations apply especially, it seems to me, to that group of cases included under the heading of sporadic cerebro-spinal meningitis. Cases described under this heading vary considerably, and the diagnosis of some of them is left very obscure by the clinical descriptions of some writers. Without more detailed pathological studies, cases of this general type, I maintain, must often remain in doubt. The mere presence of a petechial eruption, combined with high fever and delirium, is not enough to convince us that we have a simple clinical, much less a simple pathological, question to

solve. These cases vary widely in type. In some the element of meningitis is almost absent; in fact, there appears to be a type of cases in which a disseminated focal process is present in the cerebral and medullary tissue proper. In these cases the evidence of focal lesions is often present, as in one or more of the cranial nerves. Another rare form of the disease presents almost exclusively a lesion of the spinal cord, causing paraplegia. Moreover, in some cases, other organs in the body, as the lungs, heart and kidneys, may show indubitably the evidence of the action of some infecting agent. In some cases the inflammatory process is distinctly hemorrhagic, as described by Strümpell.

As for the particular microbe in these cases, it is well known that the diplococcus, so often found associated with pneumonia, has been found in the lymph spaces and in collections under the pia in sporadic cases of cerebro-spinal meningitis. That it is invariably present, much less that it is the invariable cause of these various forms of virulent hæmorrhagic and disseminated focal cerebritis, is doubtful. This is not the place to enter into a lengthy critique of the literature of this subject; it may suffice to say that for the present the bacteriology of the subject must be left for determination to those skilled in this work, while we still for sometime devote ourselves to the study of the morbid anatomy.

The history of the case, upon which this study is based, is as follows:

C. T., aged about 26; white, male; an architect by occupation, was seized abruptly on January 9th with a severe chill. High fever supervened and the man, feeling extremely ill, took to his bed at once. He had severe headache and pains in the back and limbs. There was no history of vomiting or convulsion. Within twenty-four hours he grew delirious, and, from reports, already presented the appearance of grave illness. As far as could be gathered from his family and friends, the patient had not been exposed to any source of infection or to any unusual conditions to their knowledge.

He was treated at his home in this city during the first three days, and the report of the earlier progress of his disease is meagre and unsatisfactory. It was apparently thought that the patient was developing typhoid fever, and he was treated accordingly. The only note of interest was that on the third day it was observed that the patient's left upper eye-lid drooped and that the left

eye was turned outwards. A spot of ecchymosis appeared also at this time below the left eye.

On January 13th, the fourth day of his disease, the man was admitted into the Methodist Hospital under the writer's care. He was then gravely ill. He was in a pronounced "typhoid" state, with great depression, and was stuporous and delirious. He had a dry tongue, a rapid pulse and a continued fever. The most conspicuous symptom was a complete paralysis of the left third nerve. The lid drooped, the ball was turned outwards and the pupil was dilated. This at once attracted my notice, and I called attention to its being practically an unknown symptom in typhoid fever, the disease for which the patient had been admitted to the hospital. There was at the same time some tonic spasm of the muscles of the jaw, giving an expression of trismus, especially when the patient attempted to speak. There was also a rose colored eruption over the malar bone. With the exception of this trismus and a hyperæsthetic state of the surface of the trunk there were not noticed at this time or later any symptoms of marked irritation of either the nerve centres or the meninges. There was never any retraction of the head or fixation of muscles such as is so frequently described as being present in epidemics of spotted fever.

The diagnosis of the disease remained obscure during the first afternoon and night that the patient passed in the hospital. Typhoid fever, unless of a very aberrant and fulminant type, did not seem indicated. The disease had begun too abruptly, and the absence of abdominal symptoms, and the presence of the paralysis of the third nerve contra indicated enteric fever. The appearance of an eruption during the night cleared up this question of diagnosis to some extent. This eruption began as small papules on the face and forehead. These rapidly developed and increased in number so that by night time the whole body was covered with them. A large spot on the malar bone increased in size and soon became petechial, and by night all the papules became darker and showed hemorrhage into the tissues. During the first day in hospital hiccough was an occasional symptom.

The extensive petechial eruption, consisting of small purplish spots, was scattered thickly over face, limbs and trunk. These spots were little, if at all elevated above the surface of the skin. They evidently consisted of

small hemorrhagic effusions. They varied in size from that of a millet seed to that of a duck shot.

Over the left eye, and on the forehead and about the lips were large ecchymoses—as large in some instances as a silver half-dollar. On the dorsum of either hand was a large swelling much resembling erythema nodosum. A single pustule was seen over the left ear. The pulse was now rapid and compressible, and the nervous condition one of semi coma. The patient grew steadily worse, and on the second day after admission (fifth day of disease) he vomited a brown, bloody fluid. At this time also blood, pus and casts were found in his urine. About fifteen minutes before his death he vomited almost a pint of this bloody fluid. His death occurred in deep coma on the third day in hospital and sixth day of his disease. There was never any cardiac, pulmonary, or intestinal involvement.

In arriving at diagnosis in this case, I had to consider the abrupt onset with a chill, the rapidly grave course, the paralysis of a cranial nerve (the third), the semi-coma and depression, and finally the eruption. The absence of so-called “meningeal” symptoms, as retraction of the head, was marked; but in line with such irritative symptoms was the trismus. Measles was excluded by the absence of all catarrhal symptoms in the respiratory passages, and by the absence of the crescentic and swollen rash so characteristic of that disease. Malignant small pox was not considered at all possible, because, although the eruption appeared about the fourth day, most careful observation failed to detect a characteristic umbilicated pustule anywhere on the patient's body. It hardly seemed possible that, if the case was one of small-pox, there should not be even one distinct pock. The eruption, moreover, was not elevated or shot like. Against both of these diseases was complete unilateral third nerve palsy, which appeared as early as the third day.

The acute nephritis was clearly indicative of a profound blood poisoning. It seemed clear that the clinical picture, while not quite typical, could be fairly included only in the group of cases called sporadic spotted fever; and so it was diagnosticated, treated and reported.

Autopsy.—Petechia were seen on the face and hands, and scattered less thickly over the body. The heart was normal, no ulcerative endocarditis. The lungs were normal. No lesions demonstrated in the liver. Extravasations of blood into mucous membranes of the stomach and intestines were seen. Both kidneys were much en-

larged and were purplish in color, and the tubules were packed with pus, presenting the appearance of acute purulent nephritis. The capsule of the kidneys was not adherent.

Brain.—There was some extravasation of leucocytes into the perivascular sheaths of dura and pia. The meninges were slightly opaque. In the left occipital lobe in the region of the cuneus, there was found a liquified blood clot, not apparently purulent. This cavity was of recent origin—and of the size of a small marble.

Another small area of softened blood clot of recent inflammatory origin was found in the anterior lobe just in front of the ascending frontal convolution.

Some regions presented the appearance of deep congestion of the soft membrane.

In the mid-brain, on the left side, about the region of the third nerve nuclei, there was the appearance of large punctate hæmorrhages.

A second spot of necrosis and softening was found in the left occipital lobe. Pus was squeezed out of this.

There was a hæmorrhage under the scalp on the left side. Hæmorrhagic spots in the spinal dura were also found.

MICROSCOPICAL REPORT BY DR. SAILER.

The specimens of the present case, saved from examination, consisted of the crura, the pons, the medulla, and the spinal cord. It was impossible, unfortunately, to place them in alcohol until about twenty four hours after removal, and by that time all the tissues seemed to be quite dry. The case was supposed to be one of sporadic cerebro spinal meningitis, but aside from rather pronounced injection, the membrane appeared to be normal. Small hope was entertained of getting any satisfactory results, but, contrary to expectations (after passing the tissues rapidly through the alcohols and then allowing them to remain some weeks in celloidin) the sections stained very well; both with methylen blue (Nissl's method) and hæmatoxylin.

The following changes were found:

The pia mater of the cord is slightly thickened; the vessels, particularly those of the cervical region, are dilated and filled with blood, which appears to contain a considerable proportion of leucocytes; and in the neighborhood of some of the vessels there is a very slight accumulation of round cells. The tissue of the pia itself

is only slightly infiltrated with leucocytes and not at any place adherent to the substance of the cord; the greatest amount of infiltration is found in the anterior septum. The ependymal cells of the central canal have undergone considerable proliferation, being arranged throughout the entire cord in a sort of rough T shape; the short stem being directed posteriorly; in the lumbar region the central canal is distinctly doubled. The larger intrinsic vessels of the cord appear to be unaffected. There is no increase in their number and those that are present are not dilated nor surrounded by collections of round cells. One of the vessels of the column of Burdach that was cut longitudinally, shows a slight accumulation of round cells in the perivascular lymph space.

The distinctive pathological alteration is a round cell infiltration of the gray and white matter of the cord. Here and there throughout the cord are minute foci of round cells, usually round in outline, and not sharply limited, but gradually diminishing into the surrounding tissue. These foci are composed of simple polynuclear cells with deeply staining nuclei, none of them containing any oxyphilic granula. Some detritus is also found and occasionally, a body that appears to be a partially disintegrated nerve cell. A considerable number of polynuclear cells are also found scattered singly through the tissues. Of these foci two or three may usually be found in any section, more restricted, in the lower part of the cord, to the gray matter, but, above the lumbar region, affecting the gray or white matter indifferently. A single large focus, occupying about half the gray commissure, is found in the lumbar cord. The centre of the focus frequently contains the remains of an obliterated capillary and some of the still patulous capillaries of the cord are surrounded by a few round cells. The ganglion cells occasionally show evidences of slight degeneration; the cell body stains diffusely, the outline is more irregular and the processes apparently lost. As a rule, however, the chromophilic bodies are clearly stained and of normal shape and arrangement; and the nucleus, stained with hæmatoxylin, shows no abnormality. It may be remarked, that, owing to the condition in which the specimen was received and the doubt that it would prove of any interest, no pieces were prepared for the Golgi method, and it is therefore impossible to speak of finer ramifications of the protoplasmic processes, where, according to Monti, cellular degeneration resulting from

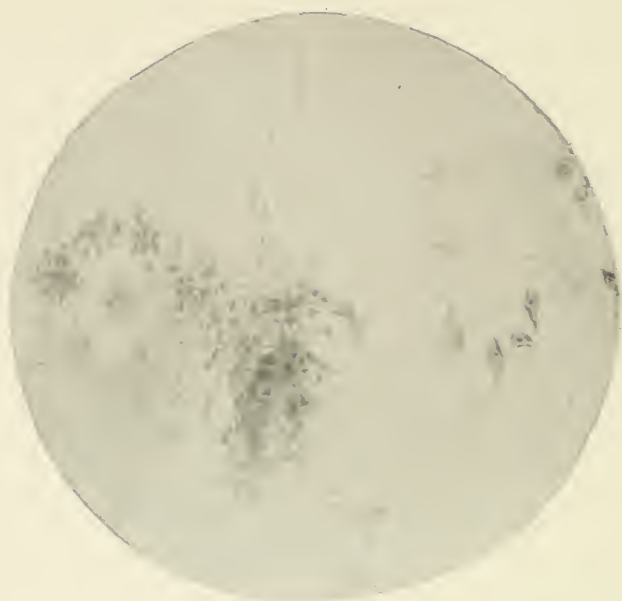
vascular change is always first manifest. The changes in the medulla are essentially similar to those of the cord. The ependyma of the floor of the fourth ventricle is thickened, and the foci of round cells are distributed generally throughout the various tissues. The ganglion cells of the hypoglossal nucleus exhibit slight changes that are possibly degenerative. The chromophilic bodies are more irregular in outline, and occasionally there is a little mass of deeply staining material heaped to one side of the nucleus, while the chromophilic bodies elsewhere are more scattered. This form of degeneration has been described by Sarbo as occurring in the cells of the anterior cornua after compression of the abdominal aorta. The nuclei of these cells, when stained with hæmatoxylin, contain chromatin that is slightly coarser and less distinct than is normal. Such cells as happen to be in the midst of a focus show greater degenerative changes: the outlines becoming indistinct, the cells pale, and the chromophilic bodies disappearing. The tissue about the aqueductus Sylvii was soft and crumbled under the section knife, so that no examination could be made of the oculo motor nucleus. In the left crura a very large focus was found, occupying the inner half of the substantia nigra and the white matter on either side. The tissue in the neighborhood of this lesion had undergone considerable alteration, and the large pyramidal cells of the substantia nigra had reached an extreme degree of degeneration. The chromophilic bodies no longer appear; the nucleus is stained a faint homogeneous blue, and the nucleolus is absent. The processes are irregular and varicose. A peculiar appearance is caused by combination of the yellow pigment normal to these cells with the blue of the stain, so that the cell seems to be filled with fine, green granulations. The rest of the left crus contains a number of other lesions of similar but less extensive nature, whilst the right crus is but slightly involved. No hemorrhages were found in the tissue of the brain or cord. The examination of the micro-organisms was negative. It could not be determined that the neuroglia cells were increased. The case may be considered as one of disease of the connective or mesoblastic tissues of the central nervous system, produced by some infectious agent introduced through the vascular system. The nervous tissues proper, that is, the tissues derived from the epiblast, were only secondarily affected.

In 1890 there appeared in the *Deutsch. Archiv für*

klinische Medizin, Strümpell's paper, now classical, "On Acute Primary Encephalitis." The changes found constituted a pathological condition that until then had not been recognized. They consisted of a round cell infiltration proceeding from the vessels and affecting particularly the white matter of the brain. The ganglion cells were normal and the neuroglia cells did not appear to be swollen. Friedman, however, had previously classified the forms of acute encephalitis into a suppurative form due to infectious irritants, an inflammation of the tissues after the use of caustics leading to proliferation of the large cells, and a creeping interstitial encephalitis combined with necrobiosis after aseptic injury, and he believed that in acute non-suppurative inflammation, the inflammatory new formation corresponds chiefly to proliferation of the fixed tissues. It is unquestionable that Friedmann's first group includes a condition which would closely resemble the acute encephalitis of Strümpell. It is, of course, possible for an infectious principal to attack the vascular systems of the brain, instead of the meninges, or that both should be equally affected, and it had already been noted by Strümpell and Osler that in epidemics of cerebro-spinal meningitis, cases occurred in which no lesion was found in the membranes at the autopsy, whose clinical histories, however, were similar to those in which the characteristic lesions had been discovered. Osler attempted to explain this by supposing that the stage of exudation had not had time to develop.

Birch-Hirschfeld describes a form of encephalitis in which there are no microscopic changes, but which are characterized microscopically by the infiltration of round cells in the adventitia of the larger vessels, and in the immediate neighborhood of the minute capillaries, frequently with hemorrhages into these infiltrated areas. Cases corresponding to this description have been reported; one by von Jaksch, that deserves mention, because, despite careful search no micro-organisms could be found in the affected tissues.

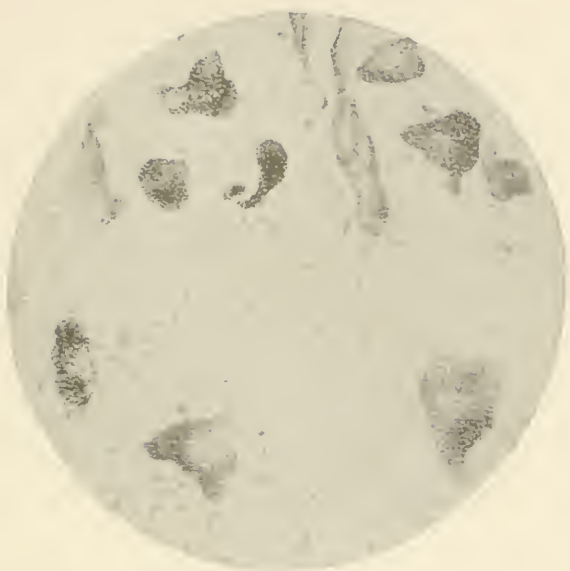
Drexler has reported the case of a small dog with great care. The disease lasted at least seven weeks and was characterized by local spasms and paralysis. Besides a few slight evidences of meningitis, the chief lesions were two large collections of round cells and detritus, one in the pons and one in the medulla; numerous circumscribed collections of round cells and considerable interstitial infiltration. The ganglion cells in the neigh-



Mass of round cells in posterior column of spinal cord (dorsal region).



Mass of round cells in gray commissure of spinal cord (lumbar region).



Degenerated cells from neighborhood of abscess in left crus.



Group of round cells in hypoglossal nucleus.

borhood of the focal lesions showed signs of partial or complete destruction. The connective tissues are of late taking a more important part in the pathology of the central nervous system, and their alterations play a principal role in the, as yet, supposititious morbid anatomy of paralysis agitans, chronic chorea and idiocy. The present case must be included among the acute conditions and can probably be best described as acute interstitial encephalitis.

DISCUSSION.

Dr. OSLER.—I am sorry that we have not a more detailed reference to the condition of the kidney. From the report, it may have been a case of cryptogenetic septicæmia. With reference to the diagnosis of meningitis or encephalitis in these cases, it is well to bear in mind that there is no single symptom, indeed, no group of symptoms, which can be depended on to show involvement of the cortex cerebri. There may be retraction of the head, a spastic condition of the muscles, clonic or tonic spasms, delirium, and unless the basilar meninges are involved the diagnosis is most uncertain. I reported a case last year in which there was scarcely a symptom lacking of cerebro-spinal meningitis, even clonic and tonic spasms of one arm, with great retraction of the head. The autopsy showed the lesions of typhoid fever without a trace of macroscopical change in the brain or cord. The question is, of course, whether in such cases, in which there are no coarse changes, there may not be found by newer methods, most extensive lesions, the direct effect of the toxins.

Dr. J. J. PUTNAM; said: I have been very much impressed with what Dr. Osler has said. The fact that we may get the symptoms usually attributed to meningitis without meningitis, is certainly an addition to our clinical knowledge. In diphtheritic paralysis some of the most recent observers have failed to find any lesions, although the characteristic symptoms have been present.

Dr. THEODORE DILLER, said: I have been struck with what seems to me to be probably an important truth, concerning cerebrites, as reported by Drs. Putnam and Lloyd, typhomania on the one hand and Landry's paralysis on the other hand. Certain bacteria or ptomaines may produce certain lesions and certain clinical symptoms. They may attack the convexity at one time and the base at another. Then, too, it is probable that the same bacterium or ptomaine may produce in different individuals widely different pathological changes and symptoms. I think this theory gives us a sort of working hy-

pothesis, by which we can account for the great variations seen in Landry's paralysis and in these cases of cerebritis, meningocerebritis and typhomania or delirium grave. There is here a rich field for bacteriologic and chemical examinations, and we may expect them to clear up much that is now very obscure.

Dr. LLOYD in closing the discussion said: I am glad that Dr. Osler emphasized the point that he did. I have felt that an accurate diagnosis of the identity of the infecting agent in many of these cases was doubtful, and have reported this case as one of cerebritis, presenting only the symptoms of cerebrospinal meningitis. I have abstained from giving a name to the active agent. I thought, perhaps, the pus that was present was the result of an epi-infection and that the pus-making micrococcus had acted secondarily. In the infectious diseases it is a very grave question often in these explosive cases to establish the diagnosis. My object in bringing this case forward was simply to present a pathological study.

June 4, 1896, 2.30 o'clock P.M.

ANHELOMUM LEWINII: THE MESCAL BUTTON.

By S. WEIR MITCHELL, M.D., LL.D.

In the absence of Dr. Mitchell, this paper was read by Dr. Wharton Sinkler. The paper described the personal experience of the writer in the use of the drug. He detailed most vividly the various phenomena produced by the drug. The principal of these were extraordinary color visions, and also brilliant form illusions. The after effect of the drug was found to be quite unpleasant, producing nausea and headache for several hours afterwards. Dr. Mitchell called particular attention to the symptoms produced by the mescal button, resembling the visual phenomena of ophthalmic migraine, and suggested that possibly the drug might be found useful in this affection.

Dr. Hughes presented a patient from the Philadelphia Hospital.

Dr. B. SACHS, in referring to Dr. Hughes' patient said he thought it would not be wise to discuss the case at this time as it would require long observation to come to a conclusion. His impression was that it would be a case of differential diagnosis between alternating consciousness and simulation.

UNCERTAINTIES OF CEREBRAL LOCALIZATION WITH SPECIAL REFERENCE TO GROWTHS IN SILENT REGIONS.

By WHARTON SINKLER, M.D.

No discussion.

A CASE OF CEREBRAL ABSCESS SITUATED
AT THE POSTERIOR PART OF THE EXTER-
NAL CAPSULE (INVOLVING THE MEDUL-
LARY SUBSTANCE OF THE FIRST TEM-
PORAL CONVOLUTION AND PART OF THE
SECOND, ALSO THE POSTERIOR PART OF
THE LENTICULAR NUCLEUS), WITH SOME
CONSIDERATIONS IN REGARD TO THE CON-
STITUTION OF THE EXTERNAL BUNDLE
OF FIBRES IN THE CEREBRAL PEDUNCLE.¹

By CHARLES K. MILLS, M.D.,

Prof. of Mental Diseases and of Medical Jurisprudence in the University of Pennsylvania

AND

WM. G. SPILLER, M.D.,

Associate in Clinical Medicine, Wm. Pepper, Clinical Laboratory, University of
Pennsylvania.

C. H., 48 years old, a baker, was admitted to the Philadelphia Hospital to the service of Dr. Mills, January 30, 1896, and died February 26, 1896.

The patient had always had fair health. His mother had never heard him complain of earache. During the entire summer of 1895 he suffered constantly from severe headache.

On December 20, 1895, while in the bake room mixing dough, he became unconscious and had three general convulsions which resembled those of epilepsy. He was unconscious for two days, and when he regained consciousness it was noticed that he was partially paralyzed on the right side, and that he not could not talk properly.

January 29, 1896, he had another attack of unconsciousness without convulsions, but with aphasia and decided paralysis. He was brought to the hospital the next day.

On admission he was in a condition of stupor; he did

¹ The microscopic sections were made in the Pepper Laboratory.

not speak when addressed and had almost total right-sided paralysis, incontinence of urine and feces, and entire loss of pain and touch sense over the paralyzed side. It was impossible to employ the perimeter on account of his stupor, but by testing him with small pieces of bread brought towards his mouth from the right and left it was noticed that he opened his mouth to receive the food only when it was brought from the left side. Likewise, when a pointed instrument was brought near either eyeball from the side, as if to touch it, it was observed that he winked only when the motion was made in front of the left half of each eyeball. From these tests, to which he responded repeatedly in the same manner, it was evident that right homonymous hemianopsia was present.

He was found to have double papillitis, most marked in the left eye. The patient's general condition gradually became worse. He occasionally complained of headache, which he did not localize. Bed-sores did not form.

February 25, 1896, he became unconscious, breathing was stertorous, the face dark red in color. The coma gradually increased until he died, twenty hours after the beginning of this attack.

There was no evidence at any time of middle ear disease.

During the entire time that he was in the hospital, until just before death, respiration, pulse and temperature presented no indications of the purulent process within the brain.

From the report of the autopsy by Dr. Jameson we extract the following :

A horizontal section just above the level of the callosum revealed an abscess on the left side in the centrum ovale, and antero-posteriorly corresponding with the position of the thalamus, internal capsule and part of the lenticular body. Both tympanic membranes were normal. No evidences of suppuration or perforation were present. The pleura, pericardium, heart, spleen and kidneys were normal.

Microscopic examination of the pus from the cerebral abscess showed only the ordinary *staphylococcus pyogenes aureus*. There were about two ounces of pus in the cavity and left ventricle. Both eyes were removed and examined by Dr. Charles A. Oliver, who reported that careful examination of the posterior halves of the eyeballs showed well-marked choked discs, more decided

on the left side; the swelling and inflammation of the nerve head and surrounding retina being extensive and covered at places with minute capillary hemorrhages.

The occurrence of epileptiform convulsions at the time of his first attack of unconsciousness, probably due to irritation of the motor fibres within the internal capsule, is worthy of note as an instance of the difficulty in diagnosing cortical lesions. It is not known in what portion of the body these convulsions began. On account of the right-sided hemiplegia and right homonymous hemianopsia, the diagnosis was made of some morbid process located at the posterior part of the internal capsule involving the optic radiations and causing pressure. Notwithstanding the history of previous epileptiform convulsions, the lesion was not believed to be cortical. A tumor, softening, or hemorrhage involving the cortex which would cause this combination of symptoms must be large enough to destroy the motor area or to act on it by pressure, and to extend backwards and inwards far enough to cut the optic radiations or involve the inner side of the occipital lobe. For the diagnosis of cortical thrombosis or embolism it would be necessary to assume a closure of both the middle and the posterior cerebral arteries in order to include the motor and visual areas.

After making macroscopic and microscopic sections of the left hemisphere at different levels, it was found that the abscess occupied the posterior part of the external capsule, a portion of the lenticular nucleus, especially the putamen, and extended downwards into the upper part of the second temporal gyrus, but had not cut the fibres of the optic radiations nor those of the internal capsule. At one place it is possible that a few motor fibres may have been destroyed, but if so, not enough to cause descending degeneration. The loss of function of the motor and visual tracts was probably due to pressure from the pus in the abscess cavity. The white matter of the first temporal gyrus was almost entirely destroyed, and fibres from the upper anterior part of the second temporal were also cut. As the cavity was very near the periphery of the first temporal convolution, it would not have been difficult for the surgeon to have emptied it.

No loss of the sense of hearing for ordinary sounds had been noticed. As the first temporal gyrus of the left hemisphere including the posterior third was destroyed, the question of word-deafness is of considerable importance. Questions were repeatedly put to the patient by

Dr. Mills, but neither by word, gesture, nor pantomime on the part of the patient was it evident that he understood. His stupor was not great enough to prevent him from taking food when offered, or from turning in bed on his sound side. The resident physician, Dr. Hetrick, and the nurses, never heard him utter more than two or three words. When his name was called he made no response, but it was probable that he was not deaf to sound heard as sound from the fact that once when a patient fell out of bed he raised his head and looked to see from what source the noise came, and it is stated positively that his attention was not aroused through the sense of sight. Vibration might, however, have to be taken into account.

In view of the frequency of cerebral abscess after suppurative processes in the lungs, it may be added that neither during life nor at the autopsy was any such process found, with the exception of spots of catarrhal pneumonia in both lungs, nor was any suppuration found elsewhere in the body. As the lesion had lasted for at least sixty-eight days and possibly longer, judging from the history of previous severe headache during several months, it was considered an excellent case for the method of Marchi.

No descending degeneration has been found in the peduncle, oblongata or cord, showing that the motor fibres were not injured to any extent, for there is hardly a doubt that if such had been the case the method employed would have revealed it.

At all parts a good half inch of sound tissue is found corresponding to the location of the optic radiations at their entrance into the pulvinar. It is through this portion that the fasciculus of Türek (which forms the lateral bundle of the peduncle) joins the posterior part of the internal capsule in the subthalamic region, according to Dejerine. These fibres, therefore, are not cut. As this statement of Dejerine may not be well known in this country, we have translated the paragraph in which it occurs.

"The posterior segment of the internal capsule, situated in front of the external geniculate body, from which it is separated by the prolongation of the reticulated zone, presents a characteristic appearance. The fibres are not cut perpendicularly to their length, as in the anterior six-sevenths, but have an oblique, almost horizontal course. It is a system of fibres with a course quite analogous to that we have described for the knee of the

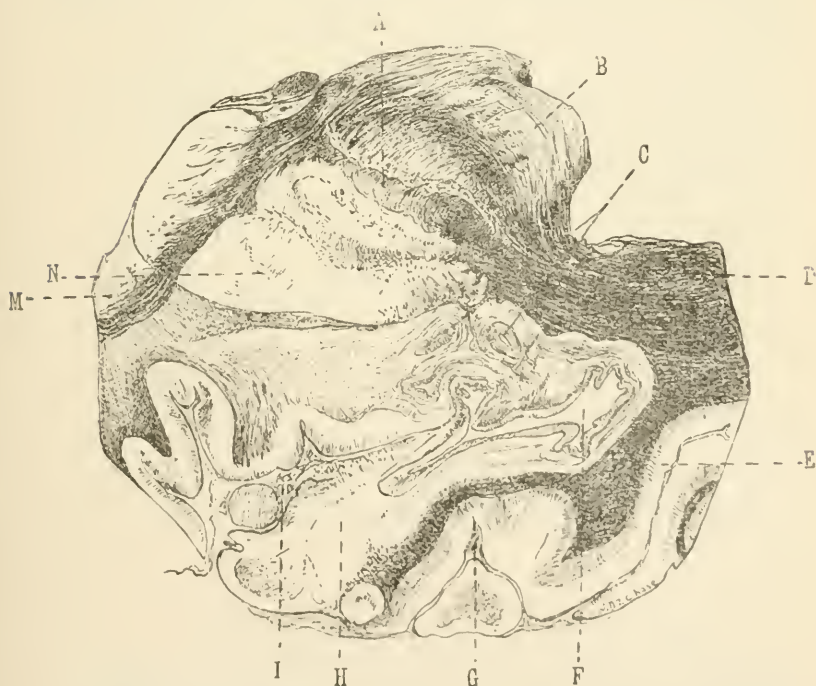
capsule. These horizontal fibres of the posterior part of the posterior segment form the tract of Türeck. This tract corresponds approximately to the external fifth of the crus. Its origin has never previously been clearly determined. Many writers, including Meynert, consider the tract of Türeck as the continuation in the crus of the fibres from the sagittal layers of the occipital lobe. (Posterior optic radiations. Gratiolet's radiations and inferior longitudinal fasciculus). This interpretation may not longer be accepted. The normal and pathological anatomy are opposed to this view. If the tract of Türeck is studied in seried vertico-transverse sections from an entire hemisphere, it is clearly demonstrated that this fasciculus is formed of fibres of projection, which, coming from the temporal lobe (especially from the second and third temporal convolutions) pass below the putamen and join the posterior part of the capsule in the subthalamic region, they then pass into the cerebral peduncle and occupy its external portion. The study of degeneration of this fasciculus following cortical lesions is very demonstrative. The posterior segment of the internal capsule and the external fasciculus of the cerebral peduncle remain intact after lesions of the occipital lobe, and the retro-lenticular segment is alone degenerated. The fasciculus of Türeck is degenerated in its entire length from the subthalamic region of the internal capsule to the pons, after lesions involving the cortex of the middle and inferior part of the temporal lobe, as one of us has shown by microscopic seried sections in five cases of cortical lesions limited to this region; and the degeneration then occupies about the external fifth of the crus."—(*Anatomie des Centres Nerveux*, Vol. I., page 609).

It will be noticed from the above that the existence of fibres within this fasciculus from the first temporal gyrus is not excluded, although their presence is rendered doubtful. Since Dejerine wrote this paragraph he has had another case, as yet unpublished, in which the lateral bundle of the crus was alone degenerated from a lesion of the temporal lobe.

Kam (*Archiv für Psychiatric*, XXVII., 1895), has reached conclusions very similar to these of Dejerine. He believes that the lateral bundle ("oval bundle") of the peduncle derives its fibres from the temporal lobe, and that these degenerate downwards when this lobe is destroyed. This "oval bundle," to employ the term used by him, occupies the external fifth of the peduncle.

So far, he expresses the views of Déjerine in every detail, but he does not mention the fact that the second and third temporal gyri are the parts especially connected with the lateral bundle of the peduncle. These statements made by Kam are all the more interesting as they were published apparently in ignorance of the work previously done by Déjerine, and therefore represent conclusions reached independently.

In our case the fibres from the first temporal, as well as those from the upper anterior part of the second temporal convolution, were entirely destroyed, and as no degeneration was found within the lateral bundle of the peduncle by the method of Marchi, and as death oc



Microscopic section (unmagnified) from the left hemisphere at the level of the parallel fissure. The first temporal gyrus extends to about three-eighths of an inch below the level of this section. The abscess cavity terminates a short distance below this level. A posterior limb of internal capsule; B, thalamus; C, separated terminations of the abscess cavity; D, optic radiations; E, second temporal gyrus; F, chief portion of abscess cavity; G, parallel super-temporal fissure; H, degenerated first temporal gyrus; I, Sylvian fissure; M, anterior limb of internal capsule; N, putamen.

curred sixty-eight days after the first attack and twenty-eight days after the second—certainly a period sufficiently long for this method—we consider that the case demonstrates the fact that *no fibres enter the fasciculus of Türk from the first temporal and the upper anterior part of the second temporal gyrus including a portion of its upper middle segment.*

This, of course, does not render impossible or improbable the origin of such fibres in the lower anterior and the whole of the posterior part of the second temporal and in the whole of the third temporal gyrus. The fibres which enter the first temporal gyrus are probably connected with the sense of hearing, and being sensory, probably do not degenerate downwards, which accounts for the absence of secondary degeneration in the peduncle.

We may state that in another case of hemiplegia in which death occurred three weeks after the beginning of the attack, we are able to show intense degeneration by the method of Marchi.

American Psychiatry.

UNDER THE DIRECTION OF

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ORIGINAL STUDIES AND REPORTS.

Training School for Nurses, Alabama Bryce Main Hospital.

Following several years of desultory effort at the instruction of attendants, the organization of a Training School for Nurses was effected two years ago. The work has been systematically carried forward to the present time, and the first class, of four young women, received their certificates in June of this year.

The course extends over two years, and is made to embrace the following :

1st. Practical instruction in the wards by the supervisor and medical staff, in the methods of caring for the sick and the insane, including the various nursing procedures, surgical nursing and minor surgical dressings and bandaging, giving of baths of all kinds, keeping of bedside notes, charting temperature, etc., demonstrations in anatomy upon the cadaver, a course in massage, dietetics and sick room cookery, etc.

2nd. A recitation to the supervisor each week during nine months of the year, based upon the "Manual of Nursing," by Weeks, (junior year), or "Nursing," by Miss Hampton, (senior year); also a weekly lecture or demonstration by a member of a medical staff; these lectures covering during the two years elementary anatomy, physiology, hygiene, insanity and nervous diseases, with the care of the insane and of nervous invalids, bacteria, infection, asepsis, disinfection, contagious diseases and their care, surgical nursing, fevers and the nursing of fever cases, emergencies and how to meet them, and such special topics as seemed from time to time advisable.

3rd. Practical experience in the several wards of the hospital, including a term of service in the wards for quiet and convalescing patients; the wards for the excited and the disturbed; for the helpless and unclean; the epileptic ward; the reception ward; the sick ward; night duty.

It is thought that the graduates will be competent to take charge of cases in private practice—cases of fever and bodily disease as well as of nervous diseases and insanity. Of the four graduates three have already had the care of cases in private nursing, and have given satisfaction.

It is expected that some will undertake this work. Those who prefer to remain in the service of the hospital will be retained at increased pay.

The policy thus far pursued has been while encouraging the nurses to undertake and continue the training school work, to use no compulsion, and to require no pledge of an intention to complete the course. Those who lose interest or show incapacity are permitted to discontinue the work at any time. The standard established is high, and the amount of work required quite considerable. As a consequence only a small percentage of those who begin the course will receive certificates. Those, however, who do not complete the two years' course will be of the higher grade only, and possessed of the natural aptitude, intelligence, training and stability of character which should insure success in nursing in any of its departments.

The first junior class consisted of sixteen women and nine men. Of these, none of the men and only four of the women received certificates. The second junior class which took up the work last October, included twenty-six women, of which eight have been, after the first year examinations, passed into

the senior class. The class to begin in the coming October will consist of about fifteen women and a few of the male nurses.

Looking backward over the work of our first two years, we say unhesitatingly that the results thus far obtained fully justify the needed expenditure of time and energy. While few are graduated all, even the few who have not joined the classes, receive a great deal of instruction, the standard of nursing is raised, the general ward work is better done, the newly admitted patients are better cared for, the sick are better cared for, the clinical records are improved by the addition of the nurses' daily notes, charts, etc. The relations between patients and nurses are more satisfactory. The nurses themselves receive a training which offers them the opportunity of successful work in private nursing, and which will be of service in any walk of life which may be followed. And finally the reflex influence of the training and instruction is a beneficial one upon the medical staff, to whom falls the work of preparing the lectures and demonstrations.

E. D. BONDURANT.

NEWS AND MISCELLANY.

Report of Commission in Lunacy, Pennsylvania. The Report of the Committee on Lunacy of the Board of Public Charities of Pennsylvania for the year ending September 30, 1894, has recently been issued, and while containing much valuable information it is to be regretted that, like its predecessors, its contents are antiquated long before its publication. The most important subject considered in the report is the question of providing relief for the overcrowded hospitals, a question which has required almost constant consideration since the formation of the Committee on Lunacy, and one which has been a constant menace to the safety and well-being, as well as to the success in treatment of the indigent insane of Pennsylvania. On the 30th of September, 1894, there were in the state hospitals 5,232 patients crowded into institutions with a very liberally estimated capacity of 4,335, an excess of 897 patients. This excess is increasing at the rate of an average of 184 patients a year. In order to solve this difficult problem new institutions for the insane, of some nature, are necessary, and "the question which confronts the present legislature is . . . what character of new institutions should now be founded and what special classes of the insane should occupy them." To answer this question the following suggestions are made :

(1) Another institution (asylum) for the indigent chronic insane, similar to that at Wernersville. In making this suggestion, however, the committee seems to ignore the fact that,

if the same restrictions are imposed upon the hospitals in sending patients to the new institutions, as in the case of Wernersville, it would be impossible to fill it from the patients in the hospitals. A large proportion from the population of the hospitals is made up from chronic cases that are usefully employed daily, but they are most of them not considered proper cases for the asylum for the "chronic" insane, and many of the best workers in the hospitals have been returned from Wernersville as unsuitable cases for the asylum.

(2) A State Hospital for the Epileptics, which would not only receive the indigent non-insane epileptics of the state, but also remove the insane epileptics from the hospitals. By this move it is claimed that 400 of the present surplus in the hospitals would be removed. At the end of the year there were only 400 epileptics in the hospitals for the insane, many of these being of the dangerous and criminal classes, and consequently in order to give this relief to the hospitals it would be necessary to place these cases in the same institution with the non-insane epileptics, which, to say the least, would be a move of doubtful expediency. While we would be glad to see an institution for the indigent epileptics in Pennsylvania; yet we do not believe that more than 30% of the epileptic population of the hospitals could be properly placed among the non-insane epileptics.

(3) "There is also an urgent need for an hospital for the dangerous and criminal insane." This plan which has long been looked upon with favor by the officers of the hospitals, would remove from their wards 91 insane convicts and 136 criminal insane, or a total of 227 of these objectionable classes, and also a large number of the dangerous chronic insane.

C. B. MAYBERRY.

Periscope.

Under the Direction of the Following Collaborators :

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WM. KRAUSS, M.D., Buffalo, N. Y. WM. B. PRITCHARD, M.D., New York.
I. LOWENKOPF, M.D., New York. H. PRITRICK, M.D., Chicago, Ill.
R. K. MACALESTER, M.D., New York. S. SHIVELY, M.D., New York.
A. STERNE, M.D., Indianapolis, Ind.

CLINICAL.

Coffee Intoxication. At the Soc. Med. des Hôp., M. Gilles de la Tourette spoke on coffee intoxication. The symptoms are analogous to those of the tea poisoning more familiar to us in this country. It is probably because there is not enough coffee in the compounds which we drink under that name to cause coffee poisoning, that we do not see it more. The author describes a dyspepsia exactly in line with that of alcoholism, pains, loss of appetite, frequent diarrhœa, and finally a real cachexia. The pulse is apt to be slow, sometimes even falling to a rate of 50 or 60. Excitement alternates with depression, insomnia and terrifying dreams appear; later may be noted a tremor of the limbs, more or less general fibrillary twitching, usually worse at night. A symmetrical anæsthesia has been noted. The tendon reflex is unaltered, there is no loss of muscular substance, electrical reactions are unchanged, and the only important item of treatment is the stoppage of the coffee. —*Merc. Med.*, Feb. 26, 1896. MITCHELL.

On Muscular Flaccidity (Hypotania) in Tabes Dorsalis. By Dr. Frenkel (*Neurol. Centralblatt*), 1896. No. 8. Under normal circumstances flexion of the thigh is possible only to a limited extent, as long as the leg is kept extended in the knee-joint. If the test is made on a corpse before rigor mortis has set in, the extended leg can be flexed in the hips to any height. This demonstrates that the resistance preventing this extent of flexion *intra vitam* is not located anywhere else but in the muscles. It is known that the muscles which flex

the knee originate from the tuber ischii, and if then the thigh is flexed towards the pelvis, with the knee extended, the said group of flexors (biceps, semi-tendinosus and semi-membranosus) suffer considerable stretching, which is the more intense the more the stretched limb is flexed on the pelvis. Under normal circumstances this stretching causes an extremely painful sensation of tension, which puts a limit to the movement whether it be an active or a passive one.

In cases of advanced tabes the author observed that on the contrary the patients were able to actively raise the extended limb to such an extent that it formed an acute angle with the pelvis; passive flexion in this manner and to above this extent was also possible.

The author thinks that this phenomenon can only be explained by a hypotonic condition of the muscles flexing the knee. In case of atrophy of said muscles from a passed poliomyelitis this motion can also be performed, but only passively, as the atrophic thigh muscles of the thigh allow only limited active flexion of the limb on the pelvis. Herein lies the distinguishing feature between the two conditions, since in the tabetic the excessive flexion of the extended limb towards the pelvis can be performed both actively and passively. The walking of tabetics with antero-flexed knees is a phenomenon homologous to the one described, and due to the same cause.

The thigh phenomenon described was never missed in the grave forms of ataxy, where the latter had induced bed-rest or where the patients were unable to walk without support (conclusions based upon twenty cases, in all of which it was present). In those forms in which the ataxy was marked, but not so strong as to prevent moving about without support, the described phenomenon was sometime missed and sometimes present.

ONUF.

THERAPUTICAL.

Treatment of Persistent Headaches.

M. Gaillard, at the Academie de Médecine, spoke of the treatment of persistent headaches in patients not neurasthenic. He distinguishes these from those occurring in neurasthenic cases and from migraine by two characteristics: First their continuousness, second their resistance to most of the ordinary medicaments. It becomes necessary until some pathologic rule can be established which will give us a specific treatment for every kind of head pain to have recourse to empiricism. The author has succeeded in curing a certain number of such cases by the use of calomel, 10 centigrammes a day for six days, watching, of course, against stomatitis and diarrhœa. Should the first treatment in this manner not be successful, after some weeks it is repeated. M.

Gailliard finds with a proportion of cases that it is successful. Very possibly any other active chologogue would serve equally well.—*La Méd. Mod.*, Feb. 26, 96. MITCHELL.

Incessant Vomiting Treated by Faradization of the Pneumogastric Nerves.

Dr. C. Bonnefin (*La France Méd.*, Sept. 20, 1895) has been employing this treatment since 1859, and claims that it is the method, par excellence, for incessant nervous vomiting, there being no danger connected with it. The only inconvenience is that it requires patience on the physician's part, and a sure hand. Incessant vomiting during pregnancy may also be stopped by faradization, so that premature confinement may be superfluous in future to save the life of the mother by sacrificing the child. The results of galvanization in the same cases are also excellent, but its use may cause serious consequences if not employed with prudence. The patient is treated by applying the electrodes of a rapid interrupted induction current to the neck over the pneumogastric nerves, before or after meals, or one electrode over the epigastrium and the other on the neck, this must be continued for one-quarter to two hours, that is until the desire to vomit ceases. The strength of the current must be medium, and not painful to the patient. MACALESTER.

A New Method of Treatment for Paralysis of Amyotrophic and Peripheral Origin.

Dr. Sighicelli (*Gaz. degli Ospet.*, Sept. 3, 1895) passed electric currents through muscles, out of which the blood had been pressed by the use of the Esmarch's bandage, and found such ischaemic muscles to be better conductors of heat and electricity. Four patients were treated in this manner with very favorable results, and from his experiments he summarizes: That artificial ischaemia produces a more permeable medium for electric currents to pass through, and only a minimal part of electric power is lost. That after loosening the constriction an enormous efflux of blood to the extremity takes place, which is favorable to the nutrition of the affected muscles. That the muscles, that are thus made anæmic, not only become smaller in volume, but are more permeable for electricity. That a certain degree of anæsthesia in the extremity is produced by the artificial anemia, which is very desirable in certain sensitive patients, especially children, when strong currents are to be used.

MACALESTER.

Treatment of Epilepsy.

(*Journ. de Méd. de Paris*, April 26, 1896). Professor de Bechterew, of St. Petersburg, recommends the following combination most highly for epilepsy:

R Infus. fol. vernalis, . 2.0 — 3 75: 180 0

Adde: Potass. bromid., 7 50—11.25

Codeini, 0.12— 0.18

D. S. Four to eight teaspoonfuls daily, in water or milk and sugar

B. never found a case that resisted this remedy, and in which there was not a considerable diminution of the number and intensity of the seizures. The favorable results of the combination of vernalis with the bromides are due, according to the author, to the constrictive action of the former drug on the cerebral vessels. The vernalis may be replaced by digitalis, but on account of its cumulative action it is less desirable.

MACALESTER.

SURGICAL.

Regeneration of a Goitre, Extirpated in Basedow's Disease, and Resection of the Cervical Sympathetic.

Contrary to the views of surgeons, that the remaining portion of the thyroid usually diminishes in size after partial thyroidectomy, Dr. Jaboulay (*Lyon Méd.*,⁸ March 22, 1896) remarks that this is by no means the case in exophthalmic goitre, the opposite having occurred in a patient under his treatment. Based on the theory that the disease is due to a perversion of the thyroid secretion, the thyroid was operated upon several times. A year ago the right lobe was extirpated, nine months later the left, which began to increase in size, and since then the remaining portion, viz.: The median lobe became the seat of a hyperplasia, the size of a small orange. After each interference there was great amelioration, temporarily, but recidives were not long in developing. Five operations on the thyroid within three years proving fruitless, the author decided to attack the intermediary link between the nervous centres and the thyroid, viz.: The cervical sympathetic, which was resected between the superior and median ganglion. The following result was excellent. Diminution of the tremor, palpitation, and exophthalmia. This last remained suppressed, but the two former symptoms appeared again within two to four weeks.

MACALESTER.

Book Reviews.

NEUROLOGICAL REPORTS FROM THE CLINIC OF PROF. CHARLES L. DANA. *The Post-Graduate*, July, 1896.

In devoting an entire number to the work in one department of the New York Post-Graduate Medical School, the *Post-Graduate* makes a new departure. There is no doubt that this number will prove to be an immense success, and that the experiment will be repeated in the future. The reports pertain in part, to the most interesting of the cases that have presented themselves at the clinic of Prof. Dana; in part to the treatment of various affections; and in part to the consideration of the pathology of several diseases. The reports are made up of fifteen articles, the more important of which are abstracted in the following:

ON A METHOD OF RELIEVING TIC DOULOUREUX. BY DR. DANA.

In addition to a description of the method employed to combat an almost intolerable affection, a number of cases are reported, which have been either improved or cured by the treatment. The number of remedies which, up to the present time, have been recommended for the relief of tic douloureux is legion—a proof that none are absolutely reliable. In one work on therapeutics, mention is made of no less than thirty remedies. The method of Dr. Dana, consists of: 1. The hypodermic injection of large doses of strychnine. 2. The administration of stimulants, as iodide of potassium, and of tonics, including especially large doses of tincture of iron. 3. Rest in bed with light diet and diuretics.

Strychnia is given in single daily doses, hypodermically. The dose is slowly increased from gr. $\frac{1}{40}$, until by the fifteenth or twentieth day gr. $\frac{1}{4}$ to $\frac{1}{2}$ is given. Large doses seem to have a quieting effect like morphine. The effect on the blood-vessels and the heart is favorable. The maximum dose is continued for a week or ten days, then gradually reduced so that by the end of five or six weeks the beginning dose is reached. The drug is then stopped and iodide of potash gr. v. t. i. d. increased to gr. xx, as well as tincture of iron m. v. increased to m. xxx is given. In some cases salicylate of potash is substituted for the iodide, or nitro-glycerine is added to the iodide or iron. Rest in bed cannot be too strongly insisted upon. The patient should be free from domestic and commercial cares. At the end of four weeks an outing of two hours daily is permitted, and at the end of six weeks, business may be resumed. In case of relapse the treatment must be begun *de novo*.

THE EXERCISE TREATMENT OF LOCOMOTOR ATAXIA. BY DR. DANA.

This method first elaborated by Dr. Frankel (Mun. Med. Woch., 1890, No. 52) deserves to be given in full as tabulated by Dr. Dana.

EXERCISES FOR THE HANDS AND ARMS.

1. Sit in front of a table, place the hand upon it, then elevate each finger as far as possible. Then, raising the hand slightly, extend and then flex each finger and thumb as far as possible. Do this first with the right and then with the left. Repeat once.

2. With the hand extended on the table, abduct the thumb and then each finger separately, as far as possible. Repeat three times.

3. Touch with the end of the thumb each finger tip separately and accurately. Then touch the middle of each phalanx of each of the four fingers with the tip of the thumb. Repeat three times.

4. Place the hand in the position of piano playing and elevate the thumb and fingers in succession, bringing them down again, as in striking the notes of a piano. Do this twenty times with the right hand, and the same with the left.

5. Sit at the table with a large sheet of paper and pencil, make four dots in the four corners of the paper and one in the centre. Draw lines from the corner dots to centre dot with right hand; same with left.

6. Draw another set of lines parallel to the first, with the right hand; same with the left.

7. Throw ten pennies upon the paper, pick them up and place them in a single pile with the right hand; then with the left; repeat twice.

8. Spread the pennies about on the table, touch each one slowly and exactly with the forefinger of right hand, then with forefinger of left.

9. Place ordinary solitaire board on the table, with the marbles in the grooves around the holes. Put the marbles in their places with the right hand; same with left hand. Patient may with advantage practice the game for the purpose of steadying the hands.

10. Take ordinary fox and geese board with holes and pegs, and beginning at one corner place pegs in holes, one after the other, using first right hand, then the left.

These exercises should be gone through with twice daily, and should be done carefully, with a conscious effort every time of trying to do one's best.

EXERCISES FOR THE BODY AND LOWER LIMBS.

1. Sit in a chair, rise slowly to erect position, without help from cane or arms of chair. Sit down slowly in the same way. Repeat once.

2. Stand with cane, feet together, advance left foot and return it. Same with right. Repeat three times.

3. Walk ten steps with cane, slowly. Walk backwards five steps with cane, slowly.

4. Stand without cane, feet a little spread, hands on hips. In this position flex the knees and stoop slowly down as far as possible, rise slowly; repeat twice.

5. Stand erect, carry left foot behind, and bring it back to its place; same with the right. Repeat three times.

6. Walk twenty steps as in exercise No. 3, then walk backward five steps.

7. Repeat exercise No. 2, without cane.

8. Stand without cane, heels together, hands on hips. Stand in this way until you can count twenty. Increase the duration each day by five, until you can stand in this way while one hundred is being counted.

9. Stand without cane; feet spread apart, raise the arms up from the sides until they meet above the head. Repeat this three times. With the arms raised above the head, carry them forward and downward, bending with the body until the tips of the fingers come as near the floor as they can be safely carried.

10. Stand without cane, feet spread apart, hands on hips; flex the trunk forward then to the left, then backwards, then to the right, making a circle with the head. Repeat three times.

11. Do exercise No. 9 with heels together.

12. Do exercise No. 10 with heels together.

13. Walk along a fixed line, such as a seam on carpet, with the cane, placing the feet carefully on the line each time. Walk a distance of at least fifteen feet. Repeat twice.

14. Do same without cane.

15. Stand erect with cane; describe a circle on the floor with the toe of right foot. Same with toe of left. Repeat twice.

Between the fifth and sixth exercises patient should rest a few moments.

THE PRACTICAL USES OF HYPNOTISM IN PUBLIC CLINICS. By Dr. William P. Wilkin.

Dr. Wilkin is convinced of the efficacy of hypnotism in suitable cases. He employs "Bernheim's Method," in which the patient is first relieved of any scruples or fears by a reasonable explanation of the object and method. He is then seated comfortably in a chair, and directed to fix his eyes upon some object held up before his face; he is then told quietly and repeatedly to "go to sleep." His brow is usually stroked. In a short time the eyes look sleepy; he is then commanded to close them, the hand of the operator is passed gently over the lids, and the patient is told he cannot open the eyes.

Wilkins finds it best to make only one or two suggestions, repeated several times, at one séance. The duration of sleep varies from ten minutes to half an hour or more.

The forms of disease best treated by suggestion, are those of a functional nervous nature. Primary types of neurasthenia, the major types of hysteria, insomnia, phobomania, agoraphobia, dipsomania, tobaccoomania, syphilophobia, folie génitale, have been successfully treated.

THE INFLUENCE OF ANTI-SYPHILITIC TREATMENT IN PREVENTING CERTAIN DISEASES OF THE NERVOUS SYSTEM CONSIDERED OF SYPHILITIC ORIGIN. A Statistical Study. By Joseph Collins, M. D.

Does anti-syphilitic treatment applied during the activity of the virus, that is during the time of so called "secondaries," or constitutional manifestations, diminish the likelihood that following these diseases, late sequences will occur, such as tabes and paresis? Further will such treatment prevent the occurrence of disease, such as syphilitic spinal paralysis and diseases of the blood vessels, leading to thrombosis, which are directly due to syphilis? From a statistical study of private, dispensary and hospital cases, Dr. Collins attempts to throw some light upon these problems. The cases studied are only such in which careful inquiry had been made, concerning the treatment to which the patient had been subjected at the time of the original infection. The cases tabulated are: 1. Tabes Dorsalis—hospital cases,—No. of cases 20. 2. Tabes Dorsalis, same hospital, in which syphilis was denied; No. of cases 2. 3. Tabes Dorsalis, private cases; No. of cases 30. 4. Tabes Dorsalis, dispensary cases; No. of cases 20. 5. Cases of Tabes in which Syphilis was denied; No. of cases 28. 6. Cases of Cerebral Thrombosis, Exudative Syphilis; No. of cases 25. 7. Syphilitic Spinal Paralysis and Exudative Syphilitic Spinal Cord Diseases; No. of cases 12. 8. General Paresis,—private cases; No. of cases 6. 9. General Paresis (with Tabes); No. of cases 5.

Analysis of the tables gives the following results:

TABES DORSALIS.

	HOSPITAL CASES.		PRIVATE CASES.
	1st series.	2nd series.	
Average age when tabes developed . . .	40½ yrs.	37 yrs.	43 yrs.
" " " infected . . .	26 "	25 "	25 "
" duration of treatment . . .	3½ mos.	7 mos.	20 mos.
" time between infection and tabes	13 yrs.	10½ yrs.	14 yrs.

Many of these cases had received careful and prolonged treatment from well-known physicians, and some of them had supplemented such treatment by one or more visits to Hot Springs, Aachen and such places.

In the 20 cases at the Post-Graduate clinic the average age when *tabes* developed was 36 years.

Average duration of treatment, approximately, 3 months.

Average time between infection and *tabes*, 10 years.

In 26 cases in which antecedent syphilis was denied, the average age at which *tabes* developed was 42½ years. In these cases there had been no anti-syphilitic treatment yet these are the ones which show the most advanced age of any of the cases. This is significant if it be assumed as some neurologists do, that without previous syphilis, locomotor ataxia is exceptional, and that the occurrence of *tabes* practically points to previous syphilis.

The conclusion arrived at by Dr. Collins, from the analysis of the tables relating to *tabes* and other affections, are: 1. Exudative and degenerative diseases of the nervous system due to syphilis are most liable to show themselves at the end of the third and the beginning of the fourth decade of life. 2. Thorough and prolonged administration of anti-syphilitic remedies during the activity of the virus does not seem to materially prolong this time limit. 3. That active and prolonged anti-syphilitic treatment does not seem to prevent the development of such diseases as locomotor ataxia and general paresis. And further that the cases in which syphilis is confessed, and in which treatment has been most desultory and incomplete, are not more liable to the earlier development or the severer manifestations of either of these two diseases than those in which the treatment has been all it should be. 4. That the administration of antisyphilitic measures in the most approved way does not fulfill the requirement of cure, and that syphilis is often an incurable disease.

TWO CASES OF JACKSONIAN EPILEPSY, TREATED BY EXCISION OF THE CORTEX. By Dr. Dana and Dr. F. Curtis.

CASE I. Summary: Female, age 17, fell at the age of 6, followed by convulsions one week later. Gradual development of right-sided convulsions, with mental deterioration; no paralysis. At the age of 17, operation. Removal of cortex from arm and hand area on the left side. Temporary hemiplegia and hemianaesthesia; recovery from both conditions. Cessation of attacks for two months, followed by return.

She was operated upon by Dr. Morris, who removed a strip of cortex one inch long and one-fourth inch wide. The piece removed seemed to be composed largely of vascular tissue.

CASE II. Summary: Female age 30, married. Short clonic spasms in left leg, beginning at the age of 24, gradually increasing; finally general convulsions. No paralysis. Mental condition fairly good; no evidence of brain tumor.

Operation—removal of left leg-centre. Severe hemiplegia with hemianaesthesia, gradual recovery, entire cessation of convulsions, local and general. The surgical history is given by Dr. Curtis. Microscopical examination made by Dr. Collins: Sections stained by picro-carmin show the presence of a large number of hæmorrhages. Sections stained by the Nissl method show striking changes in the cells of the large pyramids. The cell bodies are shrunken and attenuated.

Dr. Dana is of the opinion that, if it be established that in some cases there is an area of degenerated nerve cells, which through their disease-bearing neuraxons and dendrites, start up convulsions in the rest of the brain, then the removal of these diseased nerve cells may be a useful and rational procedure.

FOUR CASES OF APOPLEXY, ILLUSTRATING THE TEMPERATURE RELATIONS IN THIS CONDITION, WITH AUTOPSY. By Dr. Dana.

Dr. Dana has previously pointed out the clinical fact that in cerebral hemorrhage accompanied by hemiplegia, there is an appreciable rise of temperature upon the paralyzed side, and that in acute cerebral softening from thrombosis or embolism, the temperature is not affected. The following cases in the main substantiate this observation.

CASE I. Summary: Male, age 67, sudden onset of right hemiplegia with aphasia, and great mental disturbance. Duration of illness one week. Temperature in right axilla, 98.4° ; left 98.2° . Slight rise in temperature, with continued difference of half to one degree. Death on the seventh day. Clot in inferior parietal lobule, extending into posterior central convolution.

Temperature:

Second day, Rectum, 99° ; R. Axilla, 98.5° ; L. Axilla 98.2°

Third " " 101.6° ; " 99.6° ; " 99.4°

On the fourth day the temperatures were the same.

CASE II. Summary: Male, age 70, sudden attack of left hemiplegia with coma. Head and eyes turned toward left. Continuous coma for seven days, with hemiplegia and twitching movements of legs. Temperature ranged from $98\frac{1}{2}^{\circ}$ in axilla, on day after admission, to $100\frac{1}{2}^{\circ}$ on day of death. Temperature on the paralyzed side ranged $\frac{1}{2}$ to 1° higher than on normal side. Post-mortem showed area of hemorrhage with softening surrounding it, involving the caudate nucleus, capsule and part of thalamus.

CASE III. Showing that in embolic hemiplegia the temperature does not rise

Summary: Male, age 18, acute rheumatism, endocarditis and cardiac hypertrophy; sudden left hemiplegia. Gradual improvement for eight days, then sudden death from heart failure. Post-mortem showed an embolus in the right middle cerebral. Temperature during seven days ranged from 98° to 100° being practically the same in each axilla.

CASE IV. An exception to the rule that hemorrhage produces elevation of the temperature of the side opposite. There were, however, some unusual features, regarding the location, which may explain the fact.

Summary: Male, age 47, alcoholism. Sudden left hemiplegia with semi-coma, admitted the second day. Almost complete left hemiplegia, some hemi-anesthesia, head turned to left, eyes turned down, vertical nystagmus, pupils small, left slightly smaller, do not react to light, no rigidity of paralyzed side. Death on fifth day. Post-mortem showed old hemorrhage involving right optic thalamus and part of right corpora quadrigemina. Recent hemorrhage involving right corpora quadrigemina, part of left, and breaking into the third ventricle. Temperature in the rectum ranged from $99\frac{1}{2}^{\circ}$ to 100° , up to last day of sickness, then rose to 102° . Temperature in the two axillae ranged half to one degree *lower* on paralyzed side than on normal side.

HEMORRHAGE INTO THE PONS VAROLII AND OPIUM POISONING. By Dr. Dana.

In this paper Dr. Dana gives a short account of the etiology and symptomatology of pontal hemorrhage, report of a typical case, report of a case of acute anemia of the pons, simulating opium poisoning, and notes of cases in which pontal hemorrhage and opium poisoning have been wrongly diagnosed.

CASE 1. Hemorrhage in lower and central part of pons. A man of middle age, was suddenly stricken down; unconsciousness, with profound

coma and stertorous respiration; died half hour after attack. He had rigidity of limbs, and small pupils. The respiration and sudden seizure excluded opium poisoning.

CASE II. Anæmia of pons. Man, 49 years,—thrown from steps of a train, striking on back of head. He was much dazed, but went home in a carriage. Next day epileptoid attack; no paralysis; one month later fainting spell; was found profoundly unconscious; pin-point pupils; respirations two per minute; no radial pulse; heart beat regularly at about seventy; respirations from stimulation and artificial heat gradually became four, but at end of half an hour, ceased entirely, very suddenly; artificial respiration caused return of voluntary breathing, which became normal at end of five hours, at which time consciousness partially restored; pupils about normal; during the night active delirium, which continued for two or three days when he became rational; two weeks after onset began to hiccough which became persistent. The symptoms closely resembled opium poisoning, which however, was absolutely excluded by the facts in the man's surroundings and subsequent history.

A CASE SHOWING THE NATURE OF PERFORATING NECROSIS OF THE SPINAL CORD. By Dr. Dana.

This is the second case of perforating necrosis which Dr. Dana puts on record, the first having been published in the *Alienist and Neurologist* in 1888. Dr. Dana believes the nature of the process to be primarily necrotic, and opposes the view of Dr. Van Giesen, who regards it as hæmorrhagic in character.

CASE. Man, 40 years old, suffering from progressive amyotrophic lateral sclerosis, which began with bulbar symptoms, then involved arms and legs. After six months, fever, acute paraplegia, death. The autopsy showed atrophy of the anterior horn cells, lateral sclerosis, acute tubercular softening of central cord, perforating tubercular necrosis extending down into dorsal cord. There was no sign of hæmorrhage in the cord, examined in its fresh state. In the softened area tubercle bacilli were found. Examination with the microscope showed that the necrotic process was not accompanied by any hæmorrhage process.

A CASE OF FRIEDREICH'S ATAXIA, WITH AUTOPSY. By Dr. Dana.

The history of this case will be found in this journal, Vol. xv, page 175, 1890. He was one of eight children of whom four developed Friedreich's ataxia. The disease began at eleven with staggering gait, steady progression, no paralysis or atrophy, mind clear, no sensory symptoms, K. j. absent vertiginous seizures.

The cord was hardened in Müller's fluid and stained with carminate of soda, Weigert's hæmatoxylin, methylene, and ordinary log-wood. The sections show that the spinal cord was much reduced in size, and flattened antero-posteriorly. Pia-Mater much thickened. Sclerosis of the posterior and lateral columns, extending through the whole length of the cord, but more marked in the lower portions. In addition there is a margin of sclerosis enveloping nearly the whole circumference of the cord. The sections also show a most peculiar change, namely the presence of holes, varying from $\frac{1}{2}$ to 2 m. m. in diameter and which are apparently dilated perivascular spaces. Each opening is surrounded by a thin layer of connective tissue. There was also a moderate degree of degeneration of the nerve cells. Brain and nerves were not obtainable.

ON A METHOD OF EXAMINING THE INSANE. By Dr. Dana.

The following is an epitome of the method employed by the author. Examination is made of

- I. Expression.
- II. Sensation and perception.
- III. Ideation and knowledge.
- IV. Emotion and instructive feelings and acts.
- V. Memory and association of ideas.
- VI. Volition and attention.
- VII. Consciousness.

EXPRESSION.

- I. Attitude, dress, speech, writing, stigmata of degeneration.

SENSATION AND PERCEPTION.

II. Ask if the patient has pains, headaches, a good appetite, if disturbed in sleep, if he hears voices of people annoying him, if he sees any one in his room, or is troubled by people calling on him, persecuting him. Test his sight and hearing and skin sensations, his sense of taste and smell.

KNOWLEDGE AND IDEATION.

III. Ask what his business is, if he has had trouble about conducting it; ask about his family relations, his home, relatives, his political, business, or professional knowledge. Find out if he has any special habits, such as drinking and smoking, his religious ideas, touch on hypnotism, electricity and fads of the day, the bicycle or the X-rays, Hunt for delusions having first found from friends if he has any, and their nature.

EMOTION AND INSTRUCTIVE FEELINGS.

IV. Inquire as to his general feelings, whether of content or unhappiness. Inquire about his ideas on suicide, about his sexual habits, about fixed and morbid ideas, about his family and his relations or children, in order to see if he still has paternal or filial or conjugal feelings.

VOLITION AND ATTENTION.

V. This will be tested in learning his history and observing his attitude, and making him try to understand a problem one gives, or a story that is told him.

MEMORY AND ASSOCIATION OF IDEAS.

VI. This is already in part determined. Ask him about the facts of his life, his name, age, the day of the month, and about his early life, school days etc., and then about what he did the day before. Test his power of association by making him give an account of some familiar event or object, or by making him do a sum in arithmetic.

CONSCIOUSNESS.

VII. This must be determined by his past history, and observations of his state while under examination. Inquire particularly for morbid somnolence, insomnia, epileptic and automatic states.

THE STRYCHNIA CURE OF ALCOHOLISM AND OPIUM HABIT. By Dr. Dana.

The following solutions are used :

I. R

Strychnia nitrat., gr. $\frac{1}{15}$.
 Atropiæ Sulph., gr. $\frac{1}{300}$.
 Aq. dest., m. x.

M. S., inject. t. i. d.
 1st day injection.

II. R

Strych. Niträt., gr. $\frac{1}{20}$.
 Atrop. Sulph., gr. $\frac{1}{200}$.
 Aq. m. x

M. Sig., inject. t. i. d.
 2nd day injection.

III. R

Tinct. Cinchon Comp., ℥xv.

" Capsici, ℥ $\frac{1}{2}$ to ℥j.

" Solan. Carolineus., ℥ij.

Vini ferri Amari., ad 3 j.

M. Sig., Mistur stomachic., 3 j t. i. d. *Shake.*

III. Order: $\frac{1}{2}$ to 1 glass of milk (hot or
 peptonized), alternating with hot beef
 tea or broth, every two hours.

R

IV. 1st and 2d nights if needed.

Potass. bromid., gr. xxxij.

Chloral hydrat., gr. xvi.

Tinct. Valerian., 3 j.

Aquae, ad 3 iv.

M. Sig., 3 j dose, repeated once, if needed.
Shake. Mist. sedativ.

This treatment is employed in the alcohol wards of Bellevue Hospital. Selected patients, after having passed through an attack of acute alcoholism, and are convalescent are allowed to remain two days to take the "cure." The patients are given the injections I. and II. and "stomachic" II. three times a day, with abundant nourishment, washing out the stomach if necessary, to help any catarrhal disturbance.

After the second day the patient is discharged, since the wards of the hospital are not large enough to permit of a longer stay. On being discharged the patient is given

IV. R

Tr. Colombo. 3 j.

" Capsici, ℥xv.

" Nuc. Vom. 3 j to 3 jss.

Apomorphin. gr. $\frac{1}{2}$.

Tr. Cinchon. Co. ad 3 iv.

M. Sig. 3 j t. i. d. in water after meals.

The patient is told to take this and report weekly.

The same treatment, when applied to patients of the morphine habit, has to be given much longer, and sometimes must be modified by the addition of bromides, or by the gradual reduction of the morphine.

There are a number of other articles in this issue of the *Post-Graduate*, among which "The Confession of a Nervous Woman," and the short autobiography of a neurasthetic are extremely interesting. Scattered throughout the book are a considerable number of excellent illustrations reproduced from photographs, relating mainly to microscopical studies.

Dr. Dana and his staff are to be heartily congratulated for their effort which is certain to meet with deserved favor. We trust that these "Reports" will prove to be the beginning of series annual reports touching upon the work done at the Post-Graduate Medical School.

MEIROWITZ

THE
Journal
OF
Nervous and Mental Disease

AMERICAN NEUROLOGICAL ASSOCIATION.

*Twenty-second Annual Meeting, held in the hall of the College
of Physicians of Philadelphia, on June 3, 4, 5, 1896.*

(Continued.)

BROWN-SEQUARD PARALYSIS, WITH REPORT
OF A CASE.

BY GEORGE J. PRESTON, M.D.,

Professor of Nervous Diseases, College of Physicians and Surgeons, Baltimore.

ON November 7, 1895, Charles Gross, a negro laborer, 29 years of age, was admitted into the City Hospital suffering from the effects of a gunshot wound. Examination of the patient showed a wound made evidently by a small bullet, just below the angle of the jaw on the left side. The patient was suffering somewhat from shock when admitted. Examination of the chest showed the heart sounds to be clear and of normal relative intensity; the pulse, however, was regularly intermittent, dropping every third beat. The lungs were clear throughout, though the left chest seemed to lag a little. The left arm was completely paralyzed, and the left leg partially paralyzed, the patient being unable to raise it from the table, though he could move it slightly. A probe passed into the wound followed the track of the bullet backward for about two inches and then lost the course. It is to be noted that the man was in a stooping position when shot.

A careful examination of the patient the next day revealed the following: The general appearance of the man is good; he is unusually well-developed and muscular, and says he has always been perfectly healthy, with the exception of what from his account must have been a bubo dating back two years. Family history is good. There was no loss of consciousness after the injury, though, he says, he felt considerably dazed. He fell immediately upon being shot, and was not able to get up from the ground without assistance.

There is no loss of power on the right side. On the left side, there is loss of power complete in the arm and almost complete in the leg. He cannot raise the leg, but can move it about slightly on the bed. Reflexes superficial and deep are apparently unaltered. On the right side there was impairment of tactile sensibility, and complete loss of pain sense and temperature sense, from a point a little below the clavicle down. The accompanying charts show the sensory disturbances, as regards pain and temperature sense.

Muscular sense was greatly impaired in the left arm; slightly in the leg. There was no disturbance of bladder or rectum.

On Nov. 19th, twelve days after the injury, the patient managed to get up, though he dragged the left leg in walking. The left arm is still completely paralyzed. On the left side there is greatly exaggerated knee reflex and ankle clonus. From the chart of this date it will be seen that the sensory disturbances are lessening in extent. The notes made Nov. 28th show that patient can walk but still drags the left leg and that the paralysis of the arm has not improved. The increased knee-jerk with ankle clonus continues in the left leg, and there is a slight ankle clonus observable in right foot. The sensory disturbances have still further cleared up.

Dec. 8th. Sensation is almost normal. Has slight movement in the fingers of the left hand. Left knee-jerk greatly exaggerated and ankle clonus marked on this side. There is a barely perceptible ankle clonus on the right side. The patient left the hospital Dec. 10th.

May 23d. The patient was examined on this date, nearly seven months after the receipt of the injury. He has regained perfect use of the left leg. The left arm is still markedly affected; he is unable to place the hand on the back of the neck, or at least can perform this movement very slowly and with great difficulty. He

says he is unable to lift any heavy weight with the left arm. The dynamometer registers 105 on the right side and only 30 on the left. There is decided atrophy of the shoulder and arm muscles.

	RIGHT ARM.	LEFT ARM.
Wrist,	16 cm.	16 cm.
Forearm uncontracted,	26 "	24 "
Forearm contracted,	28 "	26 "
Biceps contracted,	32 "	25 "

There is greatly diminished reaction to both currents in left arm, and slightly diminished reaction in left leg. The knee reflex is greatly exaggerated on the left side, and there is marked ankle clonus. There is no sensory disturbance on this side, and tests as to muscular sense showed it to be normal.

On the right side, the side opposite the lesion, there was no loss of power, no atrophy of muscles, and the reflexes were normal. Tactile sensibility appeared to be normal, except perhaps on the back of the forearm. In this situation there seemed also to be some analgesia. These disturbances were, however, trifling. Over the whole right side there was absolute loss of temperature sense. He was entirely unable to distinguish between a test tube containing hot water and one filled with ice water. This was tested with the greatest care. This is an extremely interesting point since the temperature sense had nearly entirely returned when he left the hospital Dec. 10th.

The symptoms observed in this case, viz: almost complete paralysis on the side of the lesion with loss of muscular sense, and loss of pain and temperature sense on the opposite side, suggested, of course, Brown-Sé-
quard paralysis, the lesion presumably being about the level of the fourth cervical nerve.

Brown-Sé-
quard, in 1863, from a limited number of experiments on animals, but chiefly from the study of the records of clinical cases, announced that a lesion involving one lateral half of the spinal cord gave rise to certain definite and constant symptoms. His conclusions are as follows (*Journal de la Physiologie*, t. vi., 1863): "In the human subject after a lesion destroying a small portion of one lateral half of the spinal cord, the following phenomena are observed: 1st. On the side of the lesion paralysis of voluntary motion, hyperæsthesia to tactile, pain and temperature senses, a limited zone of anæ-

thesia, and below this hyperæsthesia and elevation of temperature. On the side opposite the lesion, preservation of voluntary motion and muscular sense, complete anæsthesia, and a limited zone of hyperæsthesia above the anæsthetic parts." The persistence of sensibility of all kinds on the side of the lesion and the absolute loss of the corresponding senses on the opposite side were taken as incontestible proofs of an entire crossing of all the sensory fibres with the exception of those conveying muscular sense. No experiments of any importance bearing on the subject were made until those of Ferrier in 1886. ("Functions of the Brain," p. 51). From a number of experiments on the monkey, Ferrier came to much the same conclusions as those announced by Brown-Séquard, except that he laid stress on the fact that in his experiments muscular sense was lost on the side opposite the section, and also that in monkeys there was not noted the hyperæsthesia on the side of section which seemed to be the rule in the human subject. Ferrier makes in this connection the important observation that it is probable that the sensory paths are not so exclusively crossed in many of the lower animals as they seem to be in man and the monkey, and that the paths of voluntary motor impulses are not rigorously confined to one side of the cord. Erb (Ziemssen's *Encyclopædia*, vol. xiii.) calls attention to the girdle sensation felt at the limit of the lesion, to the occasional disturbances of bladder and rectum, to the fact that muscular atrophy may occur, and to certain trophic manifestations. Charcot (*Œuvres Complètes*, t. I. and II.) calls attention to the frequency of muscular atrophy and to the trophic changes. All the writers on the subject followed Brown-Séquard in his explanation of the clinical observations, but it is remarkable what differences are to be observed in regard to muscular atrophy, hyperæsthesia, muscular sense, tendon reflexes and other symptoms. When experiments upon animals began to be performed under strict antiseptic precautions, it became evident that Brown-Séquard's results could not be accepted *in toto*. Turner in an interesting and valuable paper (*Brain*, vol. xlv., 1891) reviews the original cases of Brown-Séquard, and adds some important experimental work upon monkeys. He concludes from the study of these and other cases that from the purely clinical standpoint it would seem that (1) Tactile sensibility was present on the paralyzed side, and in the majority of cases there was hyperæsthesia to all forms

of sensation. In most cases this was true of both arm and leg when the lesion was cervical. Pain and temperature sense followed the same rule. In regard to muscular sense there was great difficulty in arriving at any definite conclusions, since in many instances it was not tested. Brown-Séquard, from his study of the cases that he collected, believed that this sense was absent on the paralyzed side. (2) On the side opposite the lesion evidence pointed to complete anæsthesia to all forms of sensation except, perhaps, muscular sense, concerning which, as was stated above, there is great discrepancy in the recorded cases.

In studying these cases after a lapse of months or years it was seen that recovery was very irregular, but generally the paralysis persisted much longer than the sensory disturbances. The organic functions were sometimes temporarily interfered with, and the reflexes at first diminished on the paralyzed side, later became greatly exaggerated. From his experiments on monkeys Dr. Turner concluded that the sensory fibres decussated shortly after their entrance into the cord. This he thought held good in the monkey only for the hinder extremities. His experiments upon the cervical region seemed to indicate that sensibility was not entirely abolished on the non paralyzed side.

Coming down to 1894 we find Brown-Séquard renouncing in great part the views he had held so long. It was a splendid example, and one worthy of emulation, when this true scientist abandoned a theory that he had held for so many years, and one that had shed such lustre upon his name, because certain experiments, partly his own, partly the work of others, failed to completely bear out his views. In the *Archives de Physiologie*, Jan., 1894, he refers to an experiment of his own in which it was shown that the anæsthesia produced by a hemisection of the cord in the cervical region is immediately replaced by hyperæsthesia after a hemisection of the dorsal cord, and at the same time the hyperæsthesia caused by the first lesion is replaced by anæsthesia. In addition to this he adduces the fact that a simple pricking of the posterior column of the dorsal cord often suffices to produce the exact symptoms of a hemisection. In the same manner section of the posterior nerve roots in the upper dorsal region on one side will produce hyperæsthesia on the corresponding side with anæsthesia on the opposite side. He also cites the experiments upon animals, in

which, after hemisection of the cord in the dorsal region, stretching of the sciatic nerve on the side opposite the section will cause a disappearance of the anæsthesia. In the same paper he points out the great difference in function between the cords of the lower animals and man, and concludes that whatever be the cause of the symptoms clinically, the fact remains that in man a hemisection will produce a crossed anæsthesia, and refers to his 80 collected cases as proof. The only explanation he suggests, admitting that the phenomena cannot be explained by direct interference with conduction, is that the section or injury of the cord must act as an excitator of inhibition.

Mott (*Proc. Philosoph. Soc.*, Jan. 1, 1891) concludes from his experiments on monkeys, that after hemisection there is no very well marked anæsthesia on the side opposite the section, and in some instances there is distinct analgesia on the side of section. Schiff's clamp-test showed that pressure sense was present on the non-paralyzed side while absent on the paralyzed side. The evidence from Gowers' and Horsley's collection of cases of tumor of the cord points to the non-decussation of the sensory impulses in the cord. The experiments of Horsley and Gotch accord with these views. The same author (Mott) in a later paper (*Brain*, vol. xviii., 1895) gives the results of a series of experiments on monkeys, in which he cut the lumbo-sacral roots on one side, and stained the sections after the Marchi method. In brief, these experiments may be said to show that "the degenerated fibres do not pass into the opposite posterior column, nor do they enter any of the long ascending tracts of the anterior or lateral columns." The author would explain the occurrence of degenerated fibres in the crossed afferent tracts as due to vascular changes in the gray matter of the posterior horn. He also agrees with Edinger that "there is a path for afferent impressions from the posterior roots through cells of the gray matter, and by fibres from the latter which decussate in the anterior commissure."

These fibres are supposed to ascend the cord in the antero-lateral tracts to the fillet. As Mott says, "we seem to be coming back to the views of Schiff, that the gray matter conducts painful sensations and heat and cold, whilst the posterior columns convey the tactile and muscular sense impressions." It may be said that in general the researches of Ramon y Cajal and other modern

neuro-histologists, favor the idea that the great proportion of the fibres subserving the function of sensory conduction pass upon the same side of the spinal cord that they enter, and decussate in the fillet.

The conclusions to be drawn from the foregoing clinical and experimental observations are as follows:

1st. It is doubtful whether we can compare the sensory conduction of the spinal cord of the lower animals, even the monkey with man.

2d. It is probable that the main sensory pathway is uncrossed in the spinal cord.

3d The clinical cases in man showing permanent or long continued sensory disturbances on the side opposite the supposed lesion are probably due to an injury that involves more than half the cord.

4th. The temporary disturbances on the side opposite the lesion are probably to be explained on the theory of inhibition.

Dr. B. SACHS and A. G. GERSTER, of New York, presented a paper entitled

THE SURGICAL TREATMENT OF FOCAL EPILEPSY; A CRITICAL ANALYSIS OF THE RESULT IN NINETEEN CASES.

(ABSTRACT.)

For the last six years the authors have attempted to study in a thoroughly unbiased fashion the results of the various surgical procedures for the cure or relief of partial epilepsies. They include not only cases due to traumatic injury, but those associated with infantile cerebral palsies or some other acute cerebral condition. Their list of cases does not, however, include those in which the epilepsy is due to tumor. Before detailing their own cases the authors lay special stress upon the unsatisfactory results to be gained by a mere statistical inquiry of the cases reported in literature. The majority of these are reported either too early, or, if reported, the cases are not properly analyzed. It is their opinion that the results after operative procedures for the cure of epilepsy should not be considered unless at least a period of one year or even three have elapsed since the time of the operation. But they also state that it is not well to exclude all cases in which the attacks return soon after the operation, for in some of these decided improvement sets in later on. A number of authors have condemned every surgical procedure without in the least attempting to account for the failure to cure or to improve the patient. Thus the mere fact of an addiction to alcohol is of itself sufficient to explain the failure to cure epilepsy by operative procedure. The epilepsy which is developed after a traumatic injury or in association with infantile cerebral palsies is evidently due to secondary degeneration of the association fibres in the hemispheres, for this degeneration originates from the focus of diseased tissue, and the epilepsy is generally developed in the course of a year or two. In this same period of time the epilepsy often appears after

the initial injury. Horsley's proposition to excise the diseased tissue and thus prevent the epilepsy is considered to be based upon sound physiological principles, but in practice the results have not been so satisfactory as was expected, and the authors attribute this chiefly to the fact that after an epilepsy has lasted for a number of years and after secondary degeneration has been fully established, the excision of the original focus of disease cannot be expected to do good. It is important, therefore, if possible, to prevent the formation of secondary degeneration in the hemispheres by excision of the diseased tissues, or to prevent epilepsy by early surgical procedures in the case of depression of the skull and other cranial injuries. The authors' nineteen cases have been minutely tabulated with reference to the origin of the trouble, the interval elapsing between the traumatic injury or beginning of the epilepsy and the operation. The analysis of the nineteen cases shows that three were positively cured, two greatly improved, three somewhat improved, while in eleven cases there was absolutely no improvement. A study of all the cases shows that those in which there has been improvement the operation was done within a period of two years after the traumatic injury or the beginning of the disease. The same is true of those cases that were greatly improved but not cured, the failure to cure in these cases being ascribed to other causes, such as alcoholism or want of proper care after operation. The authors' views and experiences are summed up in the following conclusions :

1. That surgical interference is advisable in those cases of partial epilepsy in which not more than one or at the utmost two years have elapsed since the traumatic injury or beginning of the disease which has given rise to the convulsive seizures.

2. In case of depression or other injury to the skull surgical interference is warranted even though a number of years have elapsed, but the prospect of recovery is brighter the shorter the period of time since the injury.

3. Simple trephining may prove sufficient for a number of cases, and particularly in those cases in which there is an injury to the skull, or in which a cystic condition is the main cause of the epilepsy.

4. Excision of cortical tissue is advisable if epilepsy has lasted but a short time, and if the symptoms point to a strictly circumscribed focus of disease.

5. Since such cortical lesions are often of a micro-

scopical character, excision should be practised even if the tissue appears to be perfectly normal at the time of operation, but the greatest care should be exercised in order to make sure that the proper area is removed.

6. Surgical interference for the cure of epilepsy associated with infantile cerebral palsies may be attempted, particularly if too long an interval has not elapsed since the beginning of the palsy.

7. In cases of epilepsy of long standing, in which there is in all probability a widespread degeneration of the association fibres, every surgical procedure is absolutely useless.

A CONTRIBUTION TO THE PATHOLOGY OF EPILEPSY. A REPORT OF TWO CASES IN WHICH A PORTION OF THE CORTEX WAS EXCISED AND EXAMINED.

BY JOSEPH COLLINS, M.D., NEW YORK.

(ABSTRACT.)

The writer first referred to the difficulty of determining what the exact status of the value of trephining for epilepsy was at the present time, and pointed out the necessity of limiting the phrase operation for epilepsy to trephining, removal of the dura, and excision of the cortex. He believes that the indications for operation in epilepsy are very limited, but that such indications occur in Jacksonian epilepsy, and with extreme rarity in so-called idiopathic epilepsy. Operation is indicated in Jacksonian epilepsy when there are evidences of irritation of a circumscribed motor cortical area; it matters not what such irritation may be caused by. Operation is indicated in so-called idiopathic epilepsy when the convulsive attack begins with and is confined to the same localized spasm, and especially if such localized spasm be the only convulsive manifestation. The points to which particular attention were directed in the first case were the careful clinical study; the exact location of the lesion; the early operation, the patient having had only two or three attacks, and the distinct pathological lesion.

The patient was a boy 20 years old, in which there was neither history of epilepsy nor of trauma. His first attack was on the 29th of November, 1894, and was a typical "haut mal" attack, preceded by twitching movements of the thumb and index finger. Two or three times that week he had some twitchings in the fingers not accompanied by loss of consciousness. When he came under observation, examination showed no defect of station or gait, exaggeration of the right knee-jerk, some ankle clonus of the right leg, and grip of right

hand somewhat weaker than the left. Right triceps reflex livelier than the left. Sensibility of the right side bad. Sensibility of the entire body normal. No suggestive ocular conditions. Preliminary operation performed by Dr. Gerster consisted of removing the vault of the skull covering the cortical area for the right hand.

Second operation three days later. The cortical area for the right hand was cut out. The patient made a good recovery and was discharged from the hospital two weeks after the operation, and with the exception of some severe epileptical form of attacks shortly after the operation, the patient has been free from manifestations of epilepsy since that time, now one year. The paralysis of the right upper extremity which occurred shortly after the operation, has almost completely disappeared, and the patient has been able to earn his living as a clerk.

Since the operation he has been taking small doses of bromide of potash.

The important pathological findings in the pieces of cortical tissues removed, were:

I. Meningo-encephalitis. This seems to have been chronic in character. To this was added the acute exacerbation, which probably occurred in the interval between the second and first operation.

II. Marked obliteration in the blood vessels of the pia and cortex. This vascular change was associated with the formation of new capillaries which appeared to have undergone hyaline degeneration.

III. Slow degenerative changes in the ganglion cells. The neuroglia hyperplasia in the cortical areas, although distinctly demonstrable, was not very marked.

IV. Softened areas must have resulted from the obliteration of some of the blood vessels just at the junction of the gray matter with the white, where the blood supply is poor.

V. Replacement of this softened area by true neuroglia tissue. This was well demonstrated in the specimen which shows both areas and neuroglia tissue closely associated together in such a way that surrounding each excision of softening there is an advancing zone of neuroglia tissue.

The second case was a married woman 30 years old, of good family and personal history, who had suffered for six years from convulsive affections, which she referred to as a cramp in her leg, and which later became

associated with typical "haut mal" attacks. These attacks gradually became more frequent, until she had twenty marked attacks in the legs, and two "haut mal" attacks in twenty-four hours.

The cortical area in which the left leg centre is situated was outlined, and the corresponding opening made in the skull by Dr. B. F. Curtis. The dura was laid back, and the cortex excised. Two days later sections from the removed cortex showed the presence of a large number of hæmorrhages scattered throughout the entire section, but particularly conspicuous in the deeper part of the cortex that is nearer the line of section.

The specimens prepared after the Nissl method, show distinct and striking changes in the cells of the large pyramids. In addition to the great scarcity of the cells, there are protoplasmic processes, are then shrunken and attenuated. They stain more deeply than normal cells, and refuse to differentiate.

Only a few of the large pyramidal cells met with present a normal appearance.

The speaker did not think it well to advance any opinion based on knowledge obtained from the study of these cases, as to pathology of so-called idiopathic epilepsy, as he was keenly alive to the liability of error in generalizing on individual cases. He would, however, emphasize the necessity of cortical excision in operations done for epilepsy, because these cases, as well as others recorded, such as Van Giesson's show, that distinct lesion was frequently demonstrable.

DISCUSSION.

Dr. M. A. STARR, in discussing the papers on epilepsy, said: Concerning operations in epilepsy I have had a number of patients operated upon and have tabulated them from my case books. There are 24 of them, of which 13 were reported in my "Brain Surgery." The cases there reported as cured, were reported too early.

In none of the 24 has there been a cure. Although in some cases the interval between the operation and the recurrence has been from one to three and a half years, yet in none of them has relief been permanent. I consider that the cases were operated upon long enough ago for us to arrive at some definite conclusion, as the first operation was done in October, 1889. These patients were carefully selected. I have never had a case of idiopathic epilepsy operated upon, nor any case in

which there was a very long duration between the trauma and the fit. I have really taken most of the precautions that Dr. Sachs recommends. It is my firm conviction that these operations should not be done by general surgeons, but only by a few men who have had a large experience and who have been fortunate enough to see a good many of these cases. I am sure, the surgeons present will coincide with me in this, as it is a very dangerous thing for us to recommend operations that will be done by surgeons of little experience in this field of surgery. It is really a specialty of surgery and I wish to enforce this particularly. All my operations have been done with great care and the cases have been carefully collected, but I have to report 24 operations for epilepsy without a cure. This is very discouraging, and I am very reluctant to recommend operation any more. I now say to these patients that while something may be removed that may be of interest to the pathologist, we cannot promise much for the patient.

With regard to these operations, the excision of a cyst is very unsatisfactory. When the wall is removed the fluid reaccumulates. When the cysts are very large, as I have sometimes seen them, the patients may die on the table during the evacuation of the cyst. In surface clots the result is also unsatisfactory. In one of my cases of hemiplegia with epilepsy in a child, the hemiplegia had persisted for three months. Dr. McCosh exposed a considerable area of the motor cortex and after laying back the dura we discovered a clot lying upon the inner surface. This was scraped off and then a curette was passed under the dura, and the inside of the dura was curetted, removing a large clot. The child has since recovered partially from the hemiplegia, but there has been a recurrence of the epilepsy and the child is no better. Even in cases that are operated upon early, therefore, the results have not been good.

As for excising brain tissue, that I have done too, but even after the excision of scar tissue or of normal tissue there has been a recurrence of the attacks of epilepsy. The scar resulting from the wound of the brain may act as an irritant. In some cases as a primary result there is a certain amount of paralysis, but this passes off. I do not think, however, that permanent cure of the epilepsy is to be expected from such incisions or excisions.

As to abscess of the brain, it has been my fortune to see 12 cases, of which all were operated upon. I have made the diagnosis of abscess in two other cases; but a thrombus was found in one after death, and general meningitis in the other. In one case the abscess was to have been operated upon at nine o'clock, but the patient died suddenly at seven, from a rupture of the abscess into the lateral ventricle.

In the 11 cases operated upon the abscess was found in each

case either at the operation or at the autopsy. Of these patients three recovered. Some of these cases were seen with Dr. Knapp, some were seen at the New York Eye and Ear Infirmary with Dr. Gorham Bacon, and four were seen with Dr. McBurney. The majority of the cases occurred subsequent to ear disease. I cannot confirm some of the statements of McEwen regarding symptoms. If you have read his book you will think it possible to make a correct diagnosis in all cases. The temperature is not always low in abscess. There are cases of brain abscess that have irregular temperatures, varying between 98° and 106° twice a day. I have seen such a case and advised against operation, on the theory that the case was one of thrombosis with pyæmia, but it was operated on, the abscess was evacuated, and the patient is now perfectly well. You cannot rely upon a low temperature nor on a slow pulse rate as diagnostic symptoms of abscess.

One of the interesting symptoms of brain abscess subsequent to ear disease on the left side is aphasia. This is of the sub-cortical type of Wernicke.

Thus one patient presented the following symptoms: He had perfect power to understand what was said to him and to read; and he had no word-deafness nor word-blindness, but the association between the thing seen and the word for it or between the object named and its appearance was impossible. When the object named was concealed from him, he could not recollect how it looked, nor could he name objects shown him. An abscess was found in the temporal lobe which divided the fibres joining the temporal and occipital regions, and thus destroyed the associations between visual and auditory memories though the memories themselves were intact. He recovered after evacuation of the abscess.

I saw a case of right unilateral epilepsy recently which had been operated upon and in which the symptoms pointed to a tumor in the left hemisphere, as the cause. The patient had epileptic convulsions with right unilateral paralysis, and an operation was done over the left hemisphere, but at the autopsy the tumor was found in the right hemisphere. There was perfectly good decussation of the motor fibres, in the medulla. Such a case is inexplicable.

As to the operation itself, I am convinced that trephining is less useful than the flap operation. I have not seen the saw used which has been shown by Dr. Gerster. The instruments that Dr. McBurney uses are a very fine gouge and a chisel. He has been particularly skillful with these operations upon the head, and particularly rapid. The last operation that he did for me with a fairly thick skull in an adult, was done in 14½ minutes while the previous one took 17 minutes. This is pretty rapid work, for I have seen it take 25 minutes to get through

the skull with a trephine. The chisel that he prefers is a very fine one, which is very sharp and narrow, and I have yet to see any accident from this operation.

The diagnosis made by Dr. Thomas of his case was certainly very interesting, and in examining the patient I only confirmed his diagnosis. I should like to mention that I have been able to confirm McEwen's statement as to the change in the percussion note on the skull over the tumor. Dr. Thomas noticed as I did that there was marked flatness over the region of the left second frontal convolution, and that the difference in the percussion note as contrasted with that of the opposite side was very marked.

As to the condition of exophthalmus, I can understand very well how this can be caused by brain tumor, even when the tumor is not behind the eye. Some light was thrown upon this as being due to displacement of the brain, by an autopsy in a case seen recently at the New York Hospital. A tumor of the superior parietal convolution caused so much pressure in the left hemisphere as to force the callosal convolution that lay just beneath the falx cerebri over to the other side. In this case we thought we had found a secondary tumor of the callosal gyrus at the autopsy, but when we came to dissect the brain, it was found that the pressure had been so great in the left hemisphere that it had pressed the hemisphere downward, and over to the right side beneath the falx. The tumor in the frontal lobe undoubtedly pressed the entire brain mass downward upon the cavernous sinus, and thus produced the exophthalmus.

Dr. W. W. KEEN, in discussing the papers on epilepsy, said: As to the surgical part of Dr. Thomas' case I will say a few words. The diagnosis I consider was one of the most exact that I have ever had occasion to see, as the tumor was precisely at the point that had been indicated. I made an incision from just below the temporal ridge parallel around to the front; I then went back to the fissure of Rolando and then back again to the temporal fossa. So great was the intra-cranial pressure that the flap was raised nearly a centimetre above the general level of the skull. I have marked this skull where the fissures are seen and the piece of paper represents the flap. I employed a chisel and I think Dr. Thomas will agree with me that it did not take over fifteen minutes. In view of the slight exophthalmus there was some doubt as to the position of the tumor, *i.e.*, whether it began at the base of the second frontal or on the orbital surface, and that was the reason that led me to make the incision along the forehead. I was particularly anxious to see if there was anything on the orbital surface. I nibbled away some of the bone, being careful to take small bites, so that if the sinus was opened I could plug it up with Horsley's wax,

but it was not opened. I then lifted the frontal lobe and could see beyond the lesser wing of the sphenoid, and could get my finger in, but nothing abnormal was perceived. I then opened the dura parallel with the edge of the bone, and the moment this was done just at the point indicated, a large portion of the tumor protruded through the ruptured cortex. After tying the vessels, to my great surprise, I found that I was able to shell out the tumor completely. I took three fingers and simply scooped it out. The tumor was absolutely delimited, and was entirely separate from the brain. During the process of enucleation I noticed considerable fluid escaped, and I expressed the opinion that probably the ventricle had been opened. On inspecting the bed of the tumor and removing the clot I could see the lateral ventricle widely opened. Whether I saw the middle of the ventricle or whether it was the posterior or the lateral horn, I am not quite sure, but the ventricle was widely open, more so than I have ever seen. The question then arose, now what shall I do with it? I was a little averse to packing with gauze, but I feared that probably not finding as ready a vent externally as it did into the ventricle the blood would accumulate, pass into the third and even into the fourth with fatal results, and consequently I determined to pack it. I packed the anterior portion of from the bed of the tumor with a strip of gauze and left the end protruding from the opening. So far the result has been very satisfactory, as the patient was out of bed in two weeks.

I consider the prognosis fair or even good. Most of you will remember Durand's case, in which the tumor was even larger than this and in the same position and of the same character, and the patient was alive four years after the operation. I would call attention to the fact that as a result of so much injury to the brain by the tumor and the surgical interference, paralysis very frequently exists. The paper on this skull shows the size and shape of the tumor I removed, and if you will observe here, you will see that the tumor must have reached to the fissure of Rolando, involved the first frontal, the whole of the second frontal, and considerable of the third frontal, yet there was very little motor paralysis. There was nothing but a moderate paresis of the lower face and a moderate aphasia. After the mechanical interference, there was no additional paralysis, but there was a diminution in the aphasia. I have the tumor here and also a drawing, which may interest some of you. The tumor turned out to be a hard sarcoma and this encourages me in the prognosis.

I thought you might be interested in seeing the tumor which I removed in December, 1889, from a patient who is today still doing well. It seems as though the removal of large tumors was less dangerous than that of small ones. If this be

true, it is probably due to the fact that in searching for smaller tumors, we are apt to inflict an amount of injury upon the brain which is incompatible with recovery.

A few words as to the papers on the results in epilepsy. During the ten years since modern brain surgery began, the advancement has been very conspicuous and I am glad to say that, as a result we are able at the present time to draw some reasonable conclusions. In my own cases of epilepsy I have reported but few of them, for the reason that I wanted to be able to draw some reasonable conclusions from them, conclusions only to be reached after considerable time. I think it is incumbent upon all of us to collate after a time all of our cases and the final history of each. By this means we may learn the correct result. My own experience in this matter, although I have not collated it, has been a moderately large one, and I am rather between the position occupied by Dr. Sachs and that occupied by Dr. Starr. I must say that (although many of my cases have passed out of my observation and may have entirely recovered) I am not able at the present time to report a single known case as cured. By cured, I mean that after a reasonable time has elapsed the patient has had no fits. I would not be willing to accept one year, and I would scarcely be willing to accept two years. I think that in all cases of epilepsy we should exact the same time limit that a surgeon does in the case of cancer. We regard those cases as cured at the end of three years. I believe that in epilepsy we should certainly say two years, and I am rather in favor of three. Occasionally, even at the end of three years, the patient may be no better, but I have seen many cases of great amelioration. I am not disposed to take quite so pessimistic a view as Dr. Starr and not quite so hopeful a view as Drs. Sachs and Gerster. I believe it is worth while in most cases of Jacksonian, traumatic, and even local epilepsy, to operate, and I think the results will be satisfactory in a sufficient number of cases to warrant this. If I, personally, had epilepsy, I would run the risk of any operation rather than go through life with such a frightful disease as this. I am sure there is not one in this room who has not found among parents an almost unanimous willingness to have the one chance in a thousand tried in preference to suffering. In idiopathic or essential epilepsy I would not operate.

I am especially glad that attention has been called by Dr. Sachs to the time limit as to the onset and the duration of the attacks, as this is certainly a very important point. The earlier after the injury that we are able to operate the greater will be the probability of relief. In cases that have gone on for many years I have always refused to operate, but it is impossible to draw a hard and fast line. Where epilepsy has existed for six years or more, I should hesitate to do any operation whatever.

It is encouraging to know that in the cases that have been related to-day, improvement, which had been absent soon after operation, has been observed later, and this agrees with what I have already stated. We must have a certain time to reach definite conclusions, and it will require at least twenty years experience before these mooted questions can be settled to the satisfaction of the profession.

I must express my gratification at the able papers that have been read here to-day. The localized pathological changes are excellently given. I do not think we shall ever cure fifty per cent. of the cases, but we can benefit a sufficient number to make it worth while to run the risk of trephining.

THE STATUS OF OPERATIVE PROCEDURE AS A REMEDIAL AGENT FOR EPILEPSY.¹

BY DR. N. E. BRILL.

NOTWITHSTANDING the advances made in the domain of cerebral pathology, the increase in precision in diagnosis as well as the power of more accurate limitation of focal lesions; notwithstanding the minute detail paid to surgical technique and the discovery of the necessity of cleanliness as a prime requisite for surgical success, the results of surgical work on the cerebrum and its coverings has not been as gratifying as we were at first led to believe. As far as the operations themselves are concerned, viewed merely as operations, nothing can be said to diminish the brilliancy of the work attained in this field of surgery. The lack of success cannot be attributed to defective surgical methods, but must be placed where it belongs, upon the clinician. There is, it would appear, too strenuous a desire on the part of the clinician, to determine the accuracy of his skill in localizing cerebral function. To prove his skill he places in the hands of the surgeon cases which he thinks may be improved by operative interference.

It is too true that cerebral pathology has not kept pace with cerebral nosology. Diagnosis of a cerebral disease, particularly of the site of a cerebral lesion and defect is far easier than diagnosis of its nature, and this is especially true of that class of cases which is more frequently transferred to the surgeon than any other class of cerebral diseases. Of course, I refer to the cases of epilepsy, cortical and genuine.

Let me start out with this proposition: Surgical interference should not be countenanced or even suggested in cases where no absolute diagnosis as to the cause and nature of the epilepsy can be determined.

¹ Read by title.

Can this diagnosis in the present state of our knowledge be determined in the majority of cases? I am inclined to believe, in fact, all of us who are acquainted with the difficulties most frankly and honestly confess, it cannot. Diagnosis, as a rule, in these conditions, is only problematical and conjectural.

How often has the diagnosis of a hæmorrhage or cyst involving the cortex or sub-cortical structure been made, and presented as the cause for the existing epilepsy? and how often has the removal of the cerebral coverings failed to reveal these expected conditions? Need I ask you to recall your individual experiences in similar cases to give the answer to these questions? Don't let us deceive ourselves in assigning to our own abilities more than the ordinary skill in diagnosis; for those who are credited with possessing more than the usual diagnostic acumen have been similar victims to the same diagnostic mistakes. And yet we ought not to designate these failures as mistakes. The knowledge of cerebral pathology is still too primitive to warrant definiteness in diagnosis. These failures are not mistakes, but simply lack of knowledge. Let us accept this and honestly face the question.

I shall concede to nobody a greater desire to benefit this deplorable class of patients, and yet my experience has proven to me the uselessness of surgical interference in these cases.

Of the fourteen craniotomies which I have seen performed in this class of cases, and of which the subsequent history has been followed, in only two could definite improvement be established. These two cases had the similar feature of traumatism as an etiological factor, and in both depression of bone existed. The other twelve cases included those in which a diagnosis of old hæmorrhage, of a pachymeningitis, of cystic degeneration of the cortex had been made, and in some of which the diagnosis could not be confirmed after removal of the bony vault, stripping back of the dura, or puncture by the exploring needle.

To justify the operation in these cases the argument has been advanced that an exploratory craniotomy is devoid of danger, and that the operation itself, when the pathological condition is not relieved or even not revealed, is oftentimes accompanied by improvement in the epilepsy.

This argument is not only fallacious but is contrary

to general experience. Every surgeon knows that an exploratory operation is only too serious even when performed under the most stringent aseptic and antiseptic rules. It is needless to cite the dangers which arise and will continue to be present, or to mention the consequent damage to the cerebrum and the meninges. Is fatal meningitis under these conditions unknown? How often is the surgeon compelled to desist and suddenly stop the operation owing to the imminent danger of a fatal issue while the patient is still on the table?

I have seen this condition more than once. In fact, were the risk only a nominal or slight one, I am of the opinion that we are not justified by reason of the ill success attending upon the result of the operation to sanction it.

That temporary improvement occasionally occurs, there is no doubt. Cure is extremely rare. Temporary improvement occurs just as frequently where a medicinal agent or remedy is substituted for one which had been used before. Psychic influences also induce similar improvement, and it is a question whether the apparent success of medicinal substitution is not due more to the psychical influence than to the drug itself. The same may be said of operative procedure.

To my mind there could be but one justification for operation, and that is based on the old Spartan doctrine. Death is certainly a release to these unfortunates, and when it occurs prematurely it prevents the possibility and probability of a neuropathic and pathological progeny. But since all civilized nations regard such a doctrine as inhuman, cruel and barbarous, and since it is not legalized by any code, it cannot have recognition here.

Viewed from the basis of pure logic, to wit, our present knowledge regards the epileptic attacks as due to certain pathological conditions presenting themselves in the cerebrum or its coverings; if these conditions be removed or relieved the attacks must cease—it is a perfectly justifiable inference. We forget, however, that the question is not so simple; there are other factors involved which as yet we know nothing about. Nor must we forget that an insult to the brain may not be made with impunity; that when the pathological condition is removed, neighboring centres may take up such changes as to perpetuate the epileptic explosion or impulse; that the cicatrix resulting from a cortical excision

may itself be the originator of a new epileptic disturbance.

The note of warning against surgical interference has been sounded in unmistakable accents by Lucas Champioldmere, in France, who, in ten craniotomies reported in the year of 1891, found no improvement in a single case; by von Bergmann and Jolly in Germany, and re-echoed in America by Starr. In the light of such authoritative opinions my protest need have little weight. German and French neurologists and surgeons are far more conservative in this matter than the English and American schools.

It is needless to cite individual cases which have been voluminously reported to demonstrate the position taken by the author. The literature in the past four years abounds with the reports of failures; such failures being almost immeasurably more numerous than successes. The lack of success is not to be wondered at when we reflect upon the numerous pathological conditions which give rise to focal or cortical epilepsies, such as periencephalitis, encephalitis, sclerotic patches, cystic degenerations, old hæmorrhages both congenital and post-natal, softening, cerebral syphilis, the entire group of tumors, the parasites such as cysticercus and echinococcus, conditions of which but the very fewest can be relieved by operative measures.

How often is the diagnosis of such conditions only fixed and learned after operations? and how often does opening of the skull fail to reveal any pathological defect?

On *a priori* grounds, cortical epilepsy should show better results from operative procedure than genuine or so called idiopathic epilepsy. There is no possible justification for operative interference in the latter cases unless they be regarded as secondary to some local pathological condition, an assumption which cannot in the present state of our knowledge be sustained, and which would immediately put these cases into the other category. It may be true that there is no genuine epilepsy and that this disease is the result of some focal pathological lesion which our defective and limited methods of research and observation have failed to reveal. So much the more reason then that operative treatment should be discontinued; for we have no right to operate to relieve a condition of which we know nothing positively.

There is, no doubt, a little benefit in conservatism;

it is not, it is true, accompanied by the brilliant glamor of boldness, but it ruins nothing; it destroys nothing. It should accompany progress, not oppose it. This a rational conservatism does. Let us bear in mind the epigram "festina lente."

Dr. JAMES HENDRIE LLOYD presented an interesting case of

UNILATERAL SWEATING OF THE FACE.

A man in middle life, with hemiplegia of ten years standing, had developed unilateral facial hyperidrosis on the paralyzed side. The sweat constantly stood out on the forehead and face in large drops. There was no excessive sweating of the paralyzed arm or leg, or on the trunk. The sweating of the face was associated with enlargement of the palpebral orifice (possibly due to slight exophthalmos?) and *dilated* pupil. The physiology and pathology of the condition were discussed briefly. The phenomenon was thought to be due possibly to injury of some fibres of the sympathetic system from a lesion in the thalamus. The case will be published in detail.

CEDEMA IN GRAVES' DISEASE. REPORT OF A
CASE OF CEDEMA OF THE EYE LIDS.
THYREOIDECTOMY.

By J. ARTHUR BOOTH, M.D.

New York.

(ABSTRACT.)

Besides the three prominent and diagnostic symptoms, usually found in Graves' disease, there are a number of others, which, added to this well-known triad, finally present a symptomatology, both unique, mysterious and of extreme interest. Although these seemingly unimportant symptoms have attracted less attention than those by which the disease is sometimes designated; namely Exophthalmic Goitre, one of them, œdema, is perhaps worthy of further consideration.

These various forms of swelling may be described as consisting of three varieties: (1) Œdema of cardiac origin. It may be due to mitral disease co-existing with Graves'. (2) Œdema of nervous origin, as is seen in slight swelling of the insteps and lower legs, which does not tend to increase. Valvular lesions of the heart are absent. (3) Transitory œdema. This is the rarest class; the œdema here, being limited to various parts of the face, neck, arms and hands. The cheeks and eyelids are favorite positions, and sometimes both limbs of one side of the body may be affected.

In discussing this symptom, it will be convenient to consider its presence as commonly met with, and finally its occurrence in what I deem a rare locality, the eyelids.

(1). It consists in a circumscribed swelling or puffiness, not pitting on pressure, not stationary, and in most cases being confined to the ankle, upper part of foot, or lower part of the thigh. Sometimes the œdema may be general over the whole body, but generally it is circumscribed. Rendu saw it in the supra-clavicular and Germain Sée in the infra-clavicular hollows; Burton, Baumbler and O'Neil in the ankles; Millard and Benedikt

upon the hands; Osler and Reinhold on the face, neck and hands. Slight swelling of the ankles and feet has been observed in one-third of the cases observed by Arthur Maude. Millard collected ten cases. In one of these, a very severe form of œdema of the lower part of the body suddenly appeared, and after three weeks duration passed away simultaneously with the appearance of a severe attack of diarrhœa.

Marie noted its presence in the legs in two cases; and in one the swelling reached to the umbilicus. Möbius calls attention to its occurrence in the lower extremities. Besides the above authorities, cases are reported by West, Stierlin, O'Neil, Goix and Buschan. Examination failed to reveal any evidences of varicose veins or kidney disease in any of the cases.

Judging from the above data, it appears evident that œdema is frequently present in Graves' disease, although from a perusal of our own literature on the subject, one would be justified in forming an opposite opinion. In twenty seven cases seen by the writer, this symptom was only noted in one, and in this patient the swelling consisted of a slight but distinct puffiness of the dorsum of the hands.

Various reasons have been given and theories formulated in explanation of these dropsies. According to Marie, it is not to be explained by the existence of a cardiac lesion, it being sufficient to have "une fatigue du cœur," or a tendency to dilatation which is common in Graves' disease. Bienfait and Debove ascribe this symptom to asystole; Germain Sée and Möbius to peripheral vaso-motor disturbance; Maude states that these forms of localized œdema are evidently of neuropathic origin, and are in fact manifestations of peripheral neuritis; also to be compared to the conditions described as hysterical neuritis. The comparison is also striking between these localized œdemas and those seen in beriberi, which is clearly a peripheral neuritis.

(2). I wish now to speak of the presence of this symptom in the eyelids. Its occurrence in this locality is rarely seen, and attention has been called to it by only a few authorities.

R. Vigouroux (*Progrès Medical*, 1887) says that false œdema of the eyelids is a frequent symptom and ascribes the swelling to a paresis of the orbicularis stating that when contraction of that muscle is affected by an electric current, the swelling disappears, being driven back by

the pressure of the subcutaneous fascia. In contradiction to this statement, I may add, that in the patient I am about to present repeated trials by electricity brought about no such result.

Hector Mackenzie (*Lancet*, 1890) found the eyelids œdematous in five cases, all of old standing. Gowers (Dis. of the Nervous System, Vol. 2) mentions the occurrence of swelling of the eyelids in a patient after apparent recovery from other symptoms.

With this brief reference to the bibliography of the subject, I take pleasure in presenting a patient, in whom this œdema of the eyelids is present to a marked degree although the exophthalmos is hardly noticeable.

The history is as follows:

Nellie C—, 17. Single. Seen November 5th, 1895. When six years old, a sister, taking her in her arms, made a pretence of throwing her out of the window; she was very much frightened, and an attack of what was called brain fever followed. She was confined to the bed for several months, and during this time had a number of convulsions, but finally making a good recovery. She remained well until the appearance of menstruation six years later. About this time, when thirteen years old, a swelling of the upper lids of both eyes were noticed, which has gradually increased and now has become so noticeable as to attract attention. This symptom is more marked in winter than summer. She now complains of frequent attacks of palpitation of the heart, accompanied by throbbing in the neck and profuse perspiration; also of general nervousness and occasional headache. She has never noticed any prominence of the eyes, enlargement of the neck or swelling of the hands or feet. On examination the patient presents the appearance of a case of Graves' disease. When we examine the eyes, no exophthalmos is discovered, but instead a very marked and peculiar œdema of both upper lids. It is not a true œdema; no pitting follows pressure and it does not cause the closure of the lids, such as is produced by ordinary œdema. Movements of the eyes and lids are harmonious. On inspection there is no decided prominence of the thyroid gland, but on palpation, swelling and diffused hardness of both lobes are made out. The pulse is 120. With the exception of a loud hæmic murmur at the base, the heart is normal.

Face, neck and both hands are covered with beads of perspiration. There is a slight tremor of the fingers.

One month later (December 5th) prominence of the left eye appeared. Having been unable to do any work for some time, even to the attending of minor household duties, the patient willingly consented to operative interference, and on December 15th, she was admitted to St. Lukes Hospital, where a few days later the right lobe of the thyroid was removed by Dr. B. F. Curtis. Her recovery from the effects of the operation was rapid, and the progress of the case up to the present time has been entirely satisfactory. It is now six months since the operation, and during this time there has been a complete disappearance of all nervousness; the throbbing and palpitation have ceased, and with two exceptions the pulse has not been above 90; most of the time varying between 80 and 86. Although the improvement in the symptoms just mentioned has been marked, the peculiar œdematous swelling of the eyelids still persists; that of the left lid being greater than before the operation.

CONCLUSIONS.

The following conclusions may be legitimately drawn from this brief contribution (1) Slight degrees of œdema, situated in the extremities, are of common occurrence in Graves' disease, but this symptom, limited to the eyelids, is very seldom seen. (2) In distinguishing these various forms of swelling, it is necessary to be guided by the position and degree. If situated only on the face and upper limbs, or if unsymmetrical, it is entirely of nervous origin, and it may be so, if it affects the feet, but it is only slight and temporary. (3) These dropsies are evidently of vaso-motor origin, and are probably due to a paralysis of vaso-constrictor nerves; manifestations of peripheral neuritis. (4) Limited to the eyelids, it may be due to a paresis of the orbicularis. If this be true, however, it is strange we do not meet with it in other palsies of this muscle. (5) Thyroidectomy, carefully performed and by one cognizant of the occasional complications, is not such a dangerous operation as is generally believed. (6) From operative interference in Graves' disease, we may expect an improvement in the rapidity of the pulse, cessation of the disturbing attacks of palpitation and cure of many of the subjective phenomena.

DISCUSSION.

Dr. M. ALLEN STARR in discussing this paper said: I believe it has been proven that exophthalmic goitre is due to hypersecretion of the thyroid gland. Out of 190 cases recorded,

in which the gland was removed for relief of the disease, the percentage of deaths after the operation was 12. This is a high mortality. It happens to have been within my knowledge that several cases have been operated on in New York where every precaution has been taken, and yet where there has been unexplained death shortly after operation, although there has not been the ordinary surgical shock. I think it has been due to overpowering of the nervous system by the thyroid juice which acts as a poison, and this is due to the handling of the gland at the operation, which forces into the circulation a large amount of thyroid juice. I think attention should be called to these facts to provide against indiscriminate operation in these cases. The operation is not by any means free from danger.

Dr. BOOTH, in closing the discussion on his paper, said : Dr. Starr certainly misunderstood what was said by me in my conclusions. I am still of the opinion that the operation is not as dangerous as is generally thought; a mortality of twenty-five per cent. being too high. Out of six of my cases upon whom thyroidectomy had been performed, one died; the latter being the one referred to by Dr. Starr. I present this case on account of the peculiar œdema of the eyelids, and I would like to ask if any one present has seen a similar case.

THE PRESENT STANDING OF WORK AMONG THE INSANE.

BY DR. R. M. PHELPS.

(ABSTRACT.)

THE address of S. Weir Mitchell in 1894, and its accompanying letters, served, at least to stimulate to a more critical review of the needs of their institutions a great many of those who are officers of hospitals for the insane. As one who has been for eleven years bound up in the work, and whose hopes for it are great, I would naturally, in giving some estimate of its position, wish to defend both its standing and its aims. I believe that a true, farsighted defence of it should never be one-sided; such a one-sided defence would reveal its weakness, and would not stand the scrutiny of so critical an audience. Truth is rarely all on one side of any much-debated question. It is not, on this question of the best methods of work among the insane.

Our remarks, therefore, we would have of constructive tendency, realizing well that if cynically inclined we can pick flaws in any system, also that institutions perfectly free from criticism lose their most efficient stimulus to ward strength and growth. Seclusion is a rather more pertinent element in asylum work than in other hospital work, and criticism, even if reflecting upon our own methods and work, will, it is hoped, be productive of renewed creative and defensive energy.

Briefly stated, it is wished by the above mentioned writers that we have first, as superintendent, a man eminent in scientific attainments and productive professional work; second, managing boards who shall select such a man and supervise his work in detail; third, nurses thoroughly trained in all the finer elements of nursing, including massage, hydrotherapy and electrical applications; fourth, assistants, selected because of ability and attainments, made to teach the training schools and to do some productive and creative work; fifth, to discard mechanical restraint, have unlocked doors common, furniture artistic and homelike with occupations suited to the ability and taste of each inmate; sixth, to have cottages for the treatment, holding not over twelve patients each, a

physician in exclusive attendance on each new case, and persons of the same social customs, tastes and abilities associating together; seventh, to have the hospital near a large city; to permit the superintendent to act as consultant outside of the institution, with practice enough to keep up free critical opinions and a many sided experience; to provide for a formal and thorough consultation visit from an eminent neurologist; to have the superintendent avoid the impossible task of being an eminent and studious physician and also farmer, builder and general business man.

We can consider our present standing by taking up some of these points that have been considered as the weak ones. Points, moreover, some of which have been practically admitted by many asylum officers. It is to be said first, that some of the above aims are chiefly idealistic, as something to work forward to, but which we cannot at once achieve. An ideal life is desirable enough but we must adapt ourselves in actual living to the imperfections with which we are surrounded, keeping ahead of these imperfections, perhaps, but never being able to act at once the ideal. Total prohibition of the sale of alcoholic liquors as a beverage might be one's "ideal," but acting up to that ideal is for the present impracticable.

Again, severe criticism should be conditionally made unless it concerns a subject with which one is practically conversant. Officers feel that practical knowledge tempers their ideas very rapidly in a manner which they find very hard to explain. Indeed, it is something similar to the difficulty physicians have in making clear to laymen the justice of the regulations of the code.

To apply these ideas to conditions involve expense and state control. It is an actual fact that institutions which are supported by the State, are not and cannot be wholly exempt from State and consequently political control. We even doubt if anyone would soberly wish they were, though many are constantly complaining of the irksomeness of such control. Yet this statement holds back our development to the level of the development of the legislators and public. It is an actual fact that state institutions have been accustomed to an expenditure of three to four dollars per week, and no superintendent nor board can forcibly raise the rate. The tax payers and the public must be first educated up to the necessity of a greater expenditure. The legislators are

meeting like ideal demands from the many other institutions of the State and must put a limit somewhere. They are not apt to vote for an expensive living that only the wealthier among themselves receive.

Again, there is a lack of clear thought that confuses the acute and the chronic cases. For example, the Wernersville picture is for the chronic, harmless class, not for the curable cases. The acute cases can not fit into such a system. Again, insanity is too often spoken of as a definite disease like typhoid fever. It is frequently, perhaps usually, simply the last expression of a long series of more general disturbances. We are more and more impressed with the large number of cases in which the insanity is a part of the life, of the character and disposition, a portion of the inherited and acquired mental complex. Not one tenth of the cases seen during the last two years have a sharply defined onset of less than three months. Defectiveness and degenerative changes cover a large majority of the cases.

We pass to a few more specific statements. Concerning "mechanical restraint" I would here conservatively state that, having personally advocated extreme views or complete non-restraint, I could not do so arbitrarily or in all cases. I would modify it by saying "when a sufficient force of good nurses is present." Otherwise, as will often be the case outside of asylum walls, I would not exclude mechanical restraint.

Then as to the question of cottages, probably 90 per cent. of the insane are more or less chronic and incurable, and the immense sums needed for true cottages could not be easily obtained or justly demanded. For acute cases and in modified form they would be well, though it is pertinently true that certain chronic cases will most loudly demand cottage and other privileges. There has been much well sounding talk about cottages that has not even pretended to define what a cottage is. If the word cottage carries the natural idea of a small isolated dwelling for one family or an equivalent of one, two or three patients with their nurses, then there are none in the State hospitals. It is too expensive for even private hospitals with a per capita income ten times as great. If it means, on the other hand, a building for 20, 40, or 100 patients, then it is in most cases a misnomer. It is sometimes little, possibly nothing more than a ward or wards, isolated by a little more than the usual space between them. If as large as wards, the classification may be

even not so good as in small wards, daily adjustments are usually more difficult and supervision is also more difficult. The intermediate size holding from two to twelve patients would be, of course, good, but would be extremely expensive.

Varied occupations are good, and they are not so difficult to obtain. Such are farming, ordinary labor, painting, shoemaking, mending, and the various other industries needed to run the institution. Most asylums now have sufficient to occupy more patients than at present in them. Higher classes of work, such as printing, bookkeeping, etc., find workers so few, so changeable, so transitory that their expense is very great.

As to trained nursing, nearly one-half of the asylums have now introduced it. Behind the other hospitals some ten or more years it is true, yet working under additional obstacles which seem at times fully to justify such delay. In such subjects as those discussed, therefore, we judge the hospitals to be approximately where conservative good judgment would have them. In short, from a position of life among them and overlooking the prominent fads and fancies of the surface it would seem that they are on fairly and conservatively good ground. Expense alone counts out many of the things we and our critics would have as ideal.

As to the value of hospital care of the insane as compared with private care, I let Dr. Bannister's essay of last year stand as answer. That hospital treatment is deadly or ineffectual as claimed, we hardly think will be seriously maintained. The whole army of hospitals is doing a work both great and grand in spite of the defects, and in spite of the political appointments in places. They never get so low that for the mass their existence is not better than their non-existence. All such extreme talk is shortsighted, even while we admit that in special cases outside care is to be preferred.

In some other things criticized, I could not claim the average hospital standing to be as good. The clinical and pathological work which, it is claimed, should be the true, central work of the hospitals, is generally admitted by those officers who have made any public expression to have made sluggish progress when compared with expert work in neurology and surgery. In assigning reasons for such delay, we would refer to the seclusion of the work as compared with other medical work, the adoption of large supply interests and business, and the element of

political control. Of these we have seen political control to be unavoidable; nevertheless we believe the country as a whole is being slowly educated up to a selection and choice without political preference. The slowness of this education is as discouraging to the officers as to anyone. The seclusion of buildings and officers from active competition in medical work, and from active critical comment going with the same, is somewhat peculiar to this work. It has not been location alone, but fully as much "*the almost complete lack of study or care about the insane on the part of outside medical men.*"

This, together with the steady, pitiless criticism concerning custodial and economical elements, the attractive power of controlling and spending large sums of money without the personal anxiety as to profit, the building and planning to keep up with the rapidly growing population, has often necessarily diverted the officers' attention. Meanwhile, assistant physicians have received small pay, little reputation, have been practically assumed to be there only temporarily, and frequently by prohibition of marriage, a transitory stay has been the result. For the perpetuation of some such methods the superintendents have some responsibility; partly it is also to be admitted that such methods were founded on the past prevalent therapeutic nihilism or fatalism which, sadly enough, has too much foundation in the results obtained.

Of extraneous businesses, such, for example, as immense farms, slaughter houses, quarries, gardening, engineering, and particularly building occupations, we, personally, see no necessity that the superintendent have control, hardly that they be under the control of a medical man. I would not call these "custodial" elements. I would limit the truly custodial elements to the care of ward furnishings, to the patient's food, to the selection and government of the nurses and inside help, and the control of the ways of patients living. I would assume that these are imperatively under the control of the superintendent and assistant physicians, for the treatment of the insane is so largely a method of living and good nursing. I would defend the present practice then to the extent of saying that by right and of necessity to the patient must come first the custodial care (first in importance not occupying the most time), the clinical, second, and the pathological in the background, *this being the order in which they affect the patient's life.* To direct well the other extensive businesses mentioned for a popula-

tion of 1,000 people, one must be well informed and studious over them, and can hardly be expected to gather much headway in the clinical and pathological work. If we yield to the strong pressure that a medical man should control these, however, then the secondary question presents itself, Should not another medical man, free in time and enthusiasm, have at least equal rank and standing as in charge of the medical work proper? That autocratic control is needed or that, if needed in the medical work, it also extend over the businesses for supply, is hardly more logical here than elsewhere. It is meant not to give up the medical management of hospitals, but to assign to somebody else than the close clinical and pathological student the businesses that furnish supplies.

As for more constructive ideas, we would have more time and money spent upon diet, furnishing and living, which immediately affect patients, and less on building and outside show. We would have a graded system of government, each officer being a defined entity, orders going down through the subordinate steps. The progress of hospitalizing and hospital methods has been assumed throughout as the guiding element in our argument.

The question of defects is easy, the question of what to do is usually hard. How can active, close, scientific research become general? How can boards and superintendents and legislators be influenced in favor of active scientific professional work and permanence in appointments? How can assistant physicians be selected on the score of experience, and not on account of cheapness? As the central co-ordinating element of all, how can such a spirit of emulation and rivalry be produced as will make the whole easy and pleasant?

Yet I can find no abrupt reformatory practical answer to these. Even as to denounce monopolies is easy, yet to level property rights is infinitely troublesome and of doubtful value; so also to dogmatize about asylum work is easy, but to abruptly change that work is difficult and the correct direction of the work is yet doubtful.

We are working in a cause that needs all your help and sympathy. It needs your union with us rather than your criticism from a distance. We would be humble to the extent that we are working under great disadvantages; we would not be humble in the importance of our field, or in the deserved honor of one who cultivates it faithfully.

A CASE OF CHRONIC ADULT CHOREA, WITH PATHOLOGICAL CHANGES SIMILAR TO THOSE OF GENERAL PARESIS.

BY E. D. BONDURANT, M.D.,

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THE subjoined case, offering a somewhat unusual combination of clinical symptoms, together with pathological changes in the central nervous organs very similar to the lesions noted in general paralysis of the insane, would seem to afford additional evidence of an intimate relationship between chronic progressive chorea and certain other neuro-degenerative diseases, notably general paresis.

A meagre family history only could be obtained. The patient, a white female, was of the lower class, a native of Alabama. Her father was insane, and had "some kind of nervous trouble" which, from the description given of it by one of his relatives, was probably chorea.

Patient from early life was looked upon as dull; she received no education; worked on a farm as a laborer. At the age of seventeen she married, and one year later gave birth to a child, having up to this time evinced no mental disorder which could properly be classed as insanity. She "never seemed the same" after her confinement, there dating from this time a change in disposition, a progressive increase in mental obtuseness, some irritability, a tendency to fits of anger, and some emotional weakness. At the same time peculiar jerky movements of muscles of the face and upper extremities were noticed. These choreiform movements, as well as the mental defects and perversion, grew more marked with the lapse of time; after two or three years, incoördinate movements in lower extremities appeared and gait became unsteady. The mental weakness finally became so pronounced that patient was adjudged insane and sent to the State hospital. Her general bodily health was reported to have been good.

Six years after the onset of the disease, an examination resulted as follows: Patient is a young woman, aged

¹ Read by title.

24, of large frame, and is well nourished, has a good color, makes no complaint of feeling ill in any way. She wears an expression of stupidity; forehead is low, teeth irregular, ears illshapen, with completely attached lobules; lungs normal; heart: a slightly roughened systole at apex; arteries not tortuous nor sclerosed. Urine: small amount of albumin, trace of indican, some hyaline and nucleated tube casts, with an occasional granular cast. Blood: hæmoglobin percentage, 90; number of red corpuscles in cubic millimetre, 5,920,000; temperature, pulse and respiration normal.

There are almost constant choreoid movements, chiefly affecting the muscles of the face, head, neck and upper extremities, resulting in twitching of the corners of the mouth, grimaces, spasmodic closure and opening of the eyes, twisting of head to one side, nervous, jerky, inco-ordinate movements of fingers and arms. There are also twitchings and choreoid spasm of muscles of the lower extremities, although these are, especially when patient is seated, much less noticeable than are the movements in arms and face. None of the movements are great in extent. All of them are more pronounced on left side than on the right. The tongue is protruded straight, but cannot be held out—is jerked suddenly back and teeth snapped together. The movements become more marked when patient is made aware that she is being noticed. They cease during sleep; are increased by voluntary movements. In addition to the choreic movements, there is a rhythmic coarse tremor of hands, well marked on left side, scarcely perceptible, though undoubtedly present, on right. At times, especially when she attempts to walk, or when her attention is concentrated on other matters, there are distinct, worm-like, athetoid movements in hands and fingers, these also best shown on left side. Patient is unable to execute any finer movements with fingers, and has difficulty in dressing and in taking her food. She swallows without trouble. When told to walk, she rises from her chair with difficulty, assisting with her hands as far as possible, sways, hesitates, executes a peculiar jumping up and down movement by rising upon her toes, starts forward, takes a few unsteady steps, stops suddenly, sways, rises on her toes two or three times, then goes forward again. Her steps are short and irregular, feet kept wide apart, she catches at the wall, pieces of furniture, or persons who stand near her. Her feet are raised high, heels put down first,

and often lifted two or three times before she gets her weight rested steadily upon the limb. Her arms are, when she is not allowed to grasp anything, held in a strained position, show choreoid movements, together with the slow athetoid twistings above mentioned. She cannot walk up or down steps. Sometimes falls to the floor. She stands fairly steady with eyes closed—about as well as with them open. Her muscular strength is much less than normal. Sensation, so far as may be judged from examination of one who is so demented, unimpaired.

Electrical reactions are entirely normal. Patella reflex, both sides, much exaggerated, more so on left; ankle clonus easily elicited, also most pronounced on left, where it will continue for several minutes. Triceps reflex increased, more marked on left side. Superficial reflexes normal. Pupillary reflexes normal. Ocular movements irregular and spasmodic; no nystagmus; spasmodic contractions in orbicularis palpebrarum marked. Vision: Slight myopia. Eye grounds normal under ophthalmoscopic examination, except for a small posterior staphyloma, both eyes. Speech irregular in tone and rhythm, gasping, articulation indistinct; difficult words are slurred, or no attempt is made to pronounce them.

Her mental condition is that of advanced dementia. She replies to most questions in monosyllables. Occasionally stares stupidly, wags her head and says nothing, even when the question is often repeated. Her memory is defective—she does not know her age nor the number of her children; is dull of comprehension, indifferent and careless, but not unclean in personal habits. Delusions cannot be elicited. She is irritable, petulant, easily angered. Is utterly unable to give any intelligible account of her own case, or to return reliable answers to questions asked her.

The condition of patient remained substantially as above described for three years, the only changes being gradual increase in dementia, in violence of choreic movements, and in the spastic symptoms. She was treated at different times with potassium iodide, arsenic, various tonics, and electricity, equally without good effect. The casts and albumin persisted in her urine, but at no time was there much œdema, nor any additional indication of renal inadequacy. Her general bodily state remained good until a few weeks before her death, which

occurred nine years after the onset of the chorea, from gangrene of the lung. During the last few days of her life temperature was high, and she suffered from acute diarrhœa. Age at time of death, 27.

Post-mortem examination, made three hours after death, resulted as follows:

Body.—Well nourished.

Heart.—Weight 8 ounces; small vegetations along edge of one cusp of mitral valve. Arteries: small atheromatous patches in first inch of aorta, a small patch here and there in thoracic and abdominal aorta, and a considerable cluster of diseased areas at bifurcation of the abdominal aorta. Veins and small arteries not affected.

Lungs.—At the apex of left, a small cluster of cheesy nodules. In lower portion of upper lobe of right lung is a cavity two inches in diameter, having ragged, greenish walls, and emitting a characteristically gangrenous odor. The cavity is surrounded by a zone of consolidation, and the entire lung is well filled with blood.

Kidneys.—Both are firm, pale, capsule partially adherent, cortex pale, stria indistinct, pyramids dark red, weight of right $3\frac{1}{4}$, of left $3\frac{1}{2}$ ounces.

The lower 18 inches of *ilium*, the cæcum, and the ascending colon, show signs of acute inflammation, the mucous membrane being thickened, red, injected, surface dotted with hæmorrhagic points. Other organs in abdomen and chest are normal.

The *skull* shows slight asymmetry; the bone is thick, diploë scanty, sutures open, inner surface pale. There is unusually firm adhesion to dura. Beyond this adhesion to calvarium, the *dura* shows no abnormality. The *pia arachnoid* is extremely thick, tough, oedematous, opalescent, and can, without difficulty, be removed in large sheets; it adheres to the convolutions here and there over vertex. The blood vessels are injected; the larger arteries show no atheroma nor other disease.

The *brain* weighs 38 ounces immediately after removal and with the pia attached. It does not fill the cavity of the cranium; is shrunken, and very firm, almost hard. All of the convolutions over the convexity are atrophied, and the sulci gape; the gray cortex is thinned, and its outer surface is in places irregular. The white substance is hard, puncta vasculosa few; the lateral ventricles are large, ependymal lining granular. The surface of the corpora striata and thalami, where visible in

lateral ventricles, is uneven and sclerotic to feel. The ependymal lining of fourth ventricle is granular. Cerebellum, pons and medulla abnormally firm and hard.

The *spinal cord* is firm; in the fresh specimen pathological changes are not pronounced, but after hardening in Müller's fluid a degeneration in pyramidal tracts becomes quite evident to the naked eye.

Portions of the fresh tissue from various regions of the cortex cerebri, and from pons, medulla and cervical cord were placed in absolute alcohol, cut and stained after the Nissl method, and by carmine. The remainder of the brain and cord was placed in Müller's fluid. Golgi silver preparations of the cortical tissue were subsequently made, and after several months in Müller, a silver phosphomolybdate stain, as recommended by Berkley, was attempted, but with indifferent success. After hardening in Müller was complete, portions of the cortex, basal ganglia, internal capsule, pons, medulla, cerebellum, and the several regions of the cord, were infiltrated with celloidin, cut and stained by the Weigert method, and by Pal's and Kultschitzky's modifications of the same; and sections also tinged by nuclear stains and by sodium sulphindigotate.

Microscopic study of the tissue resulted as follows:

In the *dura* no characteristic pathological changes were found.

Pia.—There is great thickening, most marked in degree over the convexity of brain, and reaching its height in motor and nearly adjacent areas; there is a general increase in connective tissue, and a marked round cell infiltration; there are accumulations of round cells near many of the blood vessels, and near the points at which pia adheres to subjacent convolutions. The adventitia of many of the blood vessels is thickened, and in a few of the medium sized arteries, there is a thickening of muscular layer as well. At several points, small extravasations of blood are noted in meshes of pia. Most of the vessels are well filled. Over the cerebellum the changes in the pia are not marked, and also but slightly shown over basal portions of the brain.

Cerebral cortex.—The outer surface of the convolutions is in places uneven and irregularly indented, the first, or molecular layer, being of unequal thickness; the indentations correspond with points of adhesion to pia. The number of connective tissue cells in the first layer is increased. Among the nerve cells of the other layers

of the cortex extensive degenerative changes are noted, affecting alike the large and small pyramidal, fusiform and ambiguous cells. The most striking general change is an apparent *leanness*, a shrinking in size of the cells, pyramidal especially. In Nissl preparations there are noted disappearance of the normal rods and striæ of the large cells, increase in pigment deposits, irregularities of staining, some of the nuclei being deeply tinged, some of the cells diffusely stained. Many of the cell bodies are simple masses of large and small granules deeply stained. Some show vacuoles. A large proportion of the giant cells of Betz are shrunken, more or less distorted, and their characteristic chromatin rods are disintegrated into granular masses. Around many of the degenerating nerve cells accumulations of lymphoid or connective tissue cells are seen here and there, a nerve cell being almost obscured by them. Groups of eight to fifteen cells around a small pyramidal cell are not uncommon.

In Golgi silver preparations many of the nerve cells show disintegrative changes and irregularities of contour of the cell body, irregular swellings and varicosities of the dendritic processes, with extensive denudation of the lateral gemmule. In silver, as well as in the Nissl preparations, the grouping of scavenger cells about the diseased nerve cells, is noted. Throughout all layers of the cortex there is an increase in the number of connective tissue cells. In silver preparations many of the glia cells show very thick, coarse processes, often in relation with a blood vessel or with diseased nerve cells.

The blood vessels of the cortex show thickening of their walls, adventitia in particular, but here and there involving the middle and inner coats as well; many are tortuous; looped; the perivascular spaces of all are enlarged, and aggregations of round cells within the perivascular space are common; round many of the vessels are pigmented masses—hæmatoidin granules. Some few of the vascular twigs seem normal.

The changes in the blood vessels and in the cortical cells are more pronounced in motor area than elsewhere; the diseased nerve cells are noticeably grouped together, and it is also noticeable that these groups of diseased nerve cells often lie adjacent to diseased blood vessels. As is usual, many of the nerve cells are of normal appearance, although in motor area a very considerable proportion present the changes above enumerated.

In Weigert preparations an average number of tangential fibres are stained; many of these show globose and fusiform swellings, with here and there some apparent disintegration of myelinic sheath. In the motor area there are among the radial fibres, many of the largest variety which show varicosities, fusiform swellings, with here and there the myelin broken up into coarse granules. These changes in the radial fibres are not noted in anything like the same degree in sections from posterior portions of the brain, and from the frontal convolutions, although in these localities occasional varicosities are seen. The simple varicosities are sufficiently frequent in normal nerve fibres, or are produced in manipulation, but the disintegration and marked irregularities in contour noted in some of the radial and tangential fibres of motor convolutions are undoubtedly of a pathological nature.

In the corpora striata and thalami, changes in the nerve cells are not well shown in sections colored with nuclear stains, and Weigert hæmatoxylin. There is the same seeming increase in the connective tissues noted in the cortex. Nissl preparations were not made. In Golgi silver preparations the glia cells stain in large numbers, and many show the thick processes attached to the blood vessels. In lenticular nucleus there are cells which show some abnormalities—irregularities and breaking down of cell body, with partial destruction of dendritic processes. There is nothing comparable with the degenerative change in cortex, however. The blood vessels in the basal ganglia show the same changes noted in cortex, but to a lesser degree.

The ependymal lining of the fourth and lateral ventricles shows numerous granule-like swellings, nearly homogeneous or containing a few nuclei, covered by the epithelial layer, which, over some of the little protuberances shows proliferation of its cells.

In the *cerebellum* comparatively few changes of a pathological nature are discovered by nuclear or Weigert stains. Silver preparations seem to show in the dendrons of many of the large cells, varicosities and disappearance of some of the gemmules, but as the preparations were of indifferent quality only, too much importance is not to be attached to the findings. The blood vessels are also for the most part comparatively normal.

In both pons and medulla there is some seeming increase in the connective tissue structures; the

blood vessels are tortuous, show dilated perivascular spaces with agglomeration of round cells therein. The cells of the nuclei of the cranial nerves are not markedly affected, save those of the nucleus of the twelfth, in which there are noted a decided increase in fatty pigment, with granular disintegration in some cells.

In Weigert preparations many degenerated nerve fibres are discoverable in the pyramidal tracts of both sides, more noticeable in medulla, but readily distinguished in pons and in crura cerebri.

Spinal cord.—The pia is but little altered. Its blood vessels show adventitial thickening. Within the cord the connective tissue trabeculæ seem increased in number and thickness, and connective tissue nuclei are numerous.

The nerve cells of the cord are of fairly normal character.

The chiefest and most striking pathological change is degeneration in the pyramidal tracts, both crossed and direct, throughout their extent, well marked on both sides, but somewhat more pronounced on the left in crossed columns. It is estimated that one-third of the fibres at least are destroyed. There are also evidences of degeneration in other portions of the cord, noticeable in the tract of Gowers, where the destruction of nerve fibres is quite considerable. In the anterior root zone, especially its peripheral portions, diseased fibres are noted. The columns of Goll and Burdach seem of normal structure. Sections of the peripheral nerves were not made. Their roots, as seen in sections of the cord, are normal.

Clinical summary.—Chorea, developing at the age of 18, following child-birth, associated with progressive dementia, athetoid movements of upper extremities and spastic paralysis. Death from gangrene of the lungs at the age of 27. Pathological changes: Thickening of pia; disease of the blood vessels of pia, cortex and other portions of the brain; extensive degenerative changes in cortical nerve cells, especially in motor region, and degeneration of pyramidal tracts throughout their extent, with slight degenerative changes in fibres of other portions of the cord.

THE NATURE OF NEURASTHENIA.

BY DR. PHILIP COOMBS KNAPP, BOSTON.

(ABSTRACT.)

THIS study was based on one hundred cases seen in hospital practice, and fifty cases seen in private practice. The chief symptoms were nervousness and weakness—the “irritable weakness” which is considered the essential symptom of neurasthenia. Next in frequency came headache, indigestion, insomnia, and palpitation. Depression, backache and other symptoms were much less common. Neurasthenia was considered to be analogous to chronic fatigue, and to be due primarily to exhaustion of the cells in the brain cortex. Mental depression was not infrequent, but it was usually secondary to the neurasthenic condition or the physiological result of the causes (grief, worry) which had produced the neurasthenia.

Among the morbid fears were, first, those pertaining to the physical welfare of the patient, often based upon physical symptoms, and having a rational basis, although resting upon false premises and ignorance of the significance of these symptoms. In other cases the fears were more of a delusional character, and these cases were not neurasthenia but true hypochondria—a mental state akin in some degree to paranoia. The second class of morbid fears were the so-called phobias—agoraphobia, the dread of insects, snakes, high places, etc. These fears exist in perfectly healthy people, who, under their influence may be thrown into considerable anxiety and distress. In other cases the morbid fears are secondary to certain insistent ideas, as in mysophobia and some cases of the fear of people. These are forms of *folie du dente*. In other forms of *folie du dente* there are insistent ideas with morbid speculation, introspection, doubt, and metaphysical quibbling, but without morbid fears.

These fears and insistent ideas are not uncommon in mild forms in perfectly healthy persons. In the severe forms they exist as independent psychoses; hypochondriasis, the phobo-psychosis, and the phobic and specu-

lative forms of *folie du dente*. These different psychoses may exist independently without any trace of neurasthenia; they are to be found in only a small percentage of neurasthenic cases, which is greater among private patients. When found in neurasthenia these fears and insistent ideas are neither causes nor symptoms of neurasthenia, but indicative of the coexistence of another affection.

Dr. BURT G. WILDER, in discussing Dr. Knapp's paper, said: I am interested in the instances of fear of a cat. Among the few such cases known to me, is that of a distinguished entomologist, who is made very uncomfortable by the mere presence of a cat even if he does not see it. But he has assured me that his feelings are intensified when the room is carpeted; hence the impression seems physical rather than psychical. A note upon this case may be found in the *Lancet*, Oct. 6, 1866.

Dr. KNAPP, in closing the discussion on his paper, said: Of course, many of these morbid fears have their origin in some inherited protective idea. The fear of a height or of snakes certainly has such an origin. I am sure some of us would have a very wholesome fear of the snakes that we saw yesterday if they were loose, while others had a peculiar dread and horror, although they knew that there was no real danger. Many of these fears seem to be constitutional and occur in people who are in other respects of perfectly sound mind. I know of one or two gentlemen who have attained considerable distinction in the scientific world, but could not possibly become entomologists.

A CASE OF RECURRENT TRANCE POSTURALLY INDUCED.¹

By SMITH BAKER, M.D.,
Utica, N.Y.,

FEMALE, 21, Ireland, unmarried, mill operative, Romanist. Put to work when young, but continued healthy until 15 years old, when, for a period of four months, she had "chorea," which lasted for about five months; said to have been limited chiefly to the right side, including the face and eye, and to have persisted in the right arm during sleep.

Sometime later she had some sort of sickness which was supposed to have been caused by over-heating, and which was followed by "sick headaches," frequent chills, colds, and by slowly progressive paling and weakening.

On the evening before her mother died, when she was eighteen years old, after having been in anxious attendance for a month, she fainted, and after this steadily grew worse, more anæmic, exhausted, etc. For a period of about four months this continued, although she kept at work most of the time.

At the end of this time, as she was about going to bed, she slipped and fell heavily backward, striking the occiput heavily upon the bare floor. She "kind of fainted" as she expresses it, but got up, retired as usual, slept well, and "did a washing" the next day, and continued to work regularly in the mill for a month or so.

Very unexpectedly, after a day of unusual well-being, as she was about to undress for bed, she fainted, fell flat, became unconscious and remained so during the process of putting her to bed by her sisters. After a time (the length of which is not possible to ascertain) she recovered sufficiently to recognize what people said, but not to talk or make other response. How long this condition lasted I have not been able to ascertain. She remained in bed a week, listless, silent, but ate and slept well and had no other attacks of unconsciousness.

After she was able to be about, but before returning to her work (intervals uncertain), she entered upon a series of automatic trance experiences, recurring regularly and always upon lying down, usually at bedtime. They were begun without warning as she went to bed, and when I saw her three months after, they were said to have

¹ Read by title.

occurred every evening upon going to bed, and to have lasted, as a rule, from fifteen minutes to an hour, the duration seemingly not determined by particular circumstances.

The only warnings had been a feeling of weakness and weariness. From all accounts, the trance state had, without exception, been profound, involving more or less muscular rigidity, especially of the left side, rolling of the eyes, and labored respiration—with sighing at long intervals duration a portion of each period. Usually during some portion of the time, she had been observed to speak, and seemed always to be holding a conversation with her deceased mother. But she was never able to recall anything of this, nor was she ever able to remember anything that occurred during the attack. So far as the evidence went to show, she had been quite completely anæsthetic from the subsidence of consciousness until its restoration. At any rate, every effort to awaken her, no matter how energetic, had failed. Additionally to these regular nightly attacks, she had also experienced similar ones whenever she had lain down during the day, although these did not seem to be so profound, as she had been able usually to hear more or less the voices of others, while not able to use her own.

Examination revealed anæmia, sluggish digestion and excretion, a not very bright or much disciplined intellect, a not very deep interest in anything—in fact, an exhausted more or less mal-functioning system. The catamenia were regular. Over the left ovary there was slight tenderness, and there was a complaint of left side pains and tenderness. Did not appear nor act like a masturbator. Temperature, pain, pressure, kinæsthetic, and undifferentiated touch senses normal. While there were no anæsthetic areas discovered (three examinations) the entire surface presented a low grade of sensibility—perhaps not over one-half the usual. There was a compound hypermetropic astigmatism with esophoria, equal to three prismatic degrees, and which took s. + 50 Cyl. + 90, axis 90°, but would not then suffer the prismatic correction.

To complete the examination, I one evening went unexpectedly to her home and ordered her to bed immediately. As soon as she was undressed I placed myself where I could observe her without myself being noticed. Within three minutes after lying down, and while yet conversing with her sister about ordinary affairs, I noted a few marked motions of the eyelids and a sigh or two ;

then there quickly supervened unconsciousness with sighing respiration, which gradually merged into gasps at half-minute intervals by count. Pulse steady, and 70 per minute, at which rate it continued throughout the attack. The trance condition was so profound that the roughest handling, brightest light, loudest noise practicable, made no evident impression. Neither did pressure over the ovaries, nor the epigastrium; needles in various parts; ticklings of cornea, of feet, or of the fauces; nor bi-manual examination of the pelvic organs, affect anything. The hands and feet gradually became cold, and remained so until restoration. The head rolled gently from side to side. Eyelids were tremulous at times; at others, wide open. Pupil-reflex normal. There was no biting or frothing, although this was said to have been the case at various times previous. The left extremities gradually became rigid, and later, semi-flexed—the right remaining throughout much less stiffened and active. The whole seance lasted about fifteen minutes, when she gradually aroused, the extremities relaxing, and growing warmer, the respiration returning to the usual rhythm and depth, and then, with a sort of leap, the consciousness returning fully. Afterwards, there was no recollection of anything that had occurred, nor of any possible dream or vision. She complained of feeling rather tired and sleepy, but otherwise as usual. Sitting up for a little while and then lying down did not bring about a recurrence of the trance.

Since then, these attacks have been experienced with less and less frequency, and for two years now, have come only after some unusual exhaustion, or fright, or other shock like happening. The treatment has consisted of attention to the anæmia, correction of the refractive and muscular errors, and especially of frequently repeated waking suggestion, bearing upon the certainty of recovery.

The curious and persistent association of trance with the recumbent position may be referred to an actual hypnotic process involving the influence of certain muscular tensions and adjustments, either of the trunk and extremities, or of the eye more especially; or else, to a similar influence, emanating from disturbed vascular equilibrium, or from ideational anticipations. But whatever the source of the suggestional "trigger action," the gun was obviously so constructed, and withal so loaded, that it responded regularly and always carried true to the mark.

American Psychiatry.

UNDER THE DIRECTION OF

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ABSTRACTS.

On the Clinical and Pathological Relation of General Paralysis of the Insane.

By Reginald Farrar (*Journal of Mental Science*, July, 1895). The author in this essay attempts to maintain "that the term General Paralysis cannot reasonably be held to imply more than a congeries of symptoms, due to diffuse interstitial cortical encephalitis, from whatever cause arising, and upheld its essential identity with

certain varieties of insanity hitherto regarded as distinct from it."

The author holds that chronic cortical encephalitis is the only constant determining character of general paralysis and that the other so-called typical symptoms have been given undue importance. Assuming the above as the true brain change, he thinks that the descriptive characterization furnishes the correct name, and one that avoids the selection of different definitions by different authors. He sets aside the opinions of Simon and Baillarger, that organic change does not necessarily exist. He also shows the disproof of the theory that the cause is found in the ganglion cells of the sympathetic. Also claims that it is not in the spinal cord, except separately or conjointly, and gives the reasons therefor. Of the occasional cases of "general paralysis without insanity," so-called, he considers the evidences that the symptoms are still of cortical origin as predominating strength.

He deprecates the effort to differentiate tabes and general paralysis, quoting Bevan Lewis that 15.9% of general paralytics show tabes, the two having close alliance if not identity. He holds the two to combine and overlap as to the lesions and that the names should follow.

Disseminated Sclerosis is yet more intimately connected, but it is very rare, many of the cases reported being either really general paralysis or need co-existent cortical encephalitis to explain the symptoms, also that patches of sclerosis are found in general paralysis.

The poisons of lead, gout, syphilis and alcohol produce organic cerebral diseases of close alliance. Cases of general paralysis from lead poisoning are few and not very well established, and of cases from gout "little evidence is forthcoming." Syphilis, however, is a common cause, and he adopts the dictum of Savage, that "there is no possible line to be drawn between some cases of nervous syphilitic degeneration and general paralysis of the insane, and that true general paralysis may be caused by syphilis alone, or combined with other causes."

"Alcoholic insanity frequently merges into general paralysis" by forming, he maintains, a progressive cortical encephalitis. Senile dementia is a similar decline, its form determined by the senile elements. Also that apoplexies can be the beginnings of a general cortical trouble, similar in form.

The author quotes from the several best authorities both opinions and arguments to enforce his conclusion that general paralysis is not a specific disease; that the name may conveniently be kept as indicating a sufficiently well-marked clinical type, having transitional stages toward other clinical types.

Abstracts from Current Hospital Reports.

Worcester Insane Asylum, Mass.—Ernest Scribner, Supt. (Report, 1895). Statistics: Recovered 2%, much improved 0.5%, improved 1.2%, general paresis 17%, deaths from consumption 52%. This asylum is for chronic patients only.

Northampton Lunatic Asylum, Mass.—Edw. B. Nims, Supt. (Report, 1894). Statistics: Recovered 19%, much improved 11%, improved 14%, general paresis 2%, deaths from consumption 12%.

Danvers Lunatic Hospital.—C. W. Page, Supt. (Report, 1895). Statistics: Recovered 16%, much improved 10%, improved 16%, general paresis 8%, deaths from consumption 6%.

NOTES.—Pathological work reorganized under Dr. Worcester; a central bath-room is planned to provide rain baths and others of modern style. Training school is in its sixth year and is successful.

Western State Hospital, Va.—Benj. Blackford, Supt. (Report, 1895). Statistics: Recovered 59%, improved 5.8%, general paresis 4.3%, deaths from consumption 16%.

NOTE.—Complaints of the large number of incurable and senile cases; "mechanical and chemical restraint is reduced to a minimum." Argues against separate hospitals for chronic insane. Argues in favor of some legal restraint to the marriage of defectives, or to a campaign of education which shall produce like result.

Eastern State Hospital, Va.—J. D. Moncure, Supt. (Report, 1895). Statistics: Recovered about 37%, improved .007%, general paresis 3.7%, deaths from consumption 8%.

Southwestern State Hospital, Va.—R. J. Preston, Supt. (Report, 1895). Statistics: Recovered 64%, improved 8%, general paresis none, deaths from consumption 20%.

NOTES.—A training school was established last year, much enthusiasm is manifested by most of the students. Microscope and other instruments are noted as having been purchased.

Central State Hospital, Va.—Randolph Barksdale, Supt. (Report, 1895). Statistics: Recovered 37%, improved 2.6%, general paresis none, deaths from consumption 13.4%.

State Lunatic Asylum, Miss.—T. J. Mitchell, Supt. (Report, 1894-95). Statistics: Recoveries 1894 35%, for 1895 50%, improved 1894 1.5%, 1895 1.5%, general paresis 1894 .003%, 1895 none in 258 admissions, deaths from consumption 1894 42%, 1895 23%.

Cleveland State Hospital, Ohio.—H. C. Hyman, Supt. (Report): Statistics: Recovered 36.6%, improved 13%, general paresis 3.3%, deaths from consumption 12%.

The superintendent comments very strongly upon the honesty and care of the superintendent as accounting for differences in the recovery-rate in different hospitals.

Dayton State Hospital, Ohio.—J. M. Ratcliffe, Supt. (Report, 1895). Statistics: Recovered 27.7%, improved 13%, general paresis .3%, deaths from consumption 21.4%. Per capita cost of maintenance \$180.10.

NOTE.—In the list of deaths, 15% are from paresis. The superintendent asks for pictures for the wards and heavy rocking chairs for the infirm wards. 'Also states that he has established classification of patients, an epileptic ward, a hospital ward, an infirm ward, a working ward, a noisy, disturbed ward, a disturbed ward belligerent, a quiet, chronic ward, and an open ward. The receiving, the hospital and the infirm wards have each dining-rooms and especially good diet. The rest go to congregate dining-room. A general table states that since 1855 40.5% have recovered, 13% have improved.

Athens State Hospital, Ohio.—C. Dunlap, Supt. (Report, 1895). Statistics: Recovered 40.7%, improved 18%, general paresis 1.09%, deaths from consumption 20%, yearly per capita, \$132.12.

NOTES.—Asks for separate buildings as homes for the nurses. Asks for an elevator. States 21% of admissions were over 50 years of age and that 40% of the males and 57% of the females have a history of hereditary influence.

Toledo State Hospital.—H. A. Tobey, Supt. (Report, 1895). Statistics: Recovered 21.7%, improved 18.5%, general paresis 3.8%, deaths from consumption 6.6%, per capita, \$131.65.

NOTES.—Complains greatly of overcrowding and that much rebuilding is already necessary in the cottages.

Western Pennsylvania Hospital.—Henry A. Hutchinson, Supt. (Report, 1895). Statistics: Recovered 23.2%, improved 16%, general paresis 4%, deaths from consumption 16%. For eight years lectures have been given to nurses. In October, 1895, a training school for nurses was formally opened. The crowding is very excessive. Apologizes for apparently few recoveries.

Willard State Hospital, N. Y.—Theodore Kellogg, Supt. Statistics: Recovered 17%, general paresis 2.30%, deaths from consumption 16%, per capita weekly, \$2.83; annual, \$147.16.

NOTES.—Advises the purchase of a "cottage colony" adjacent, now made up of buildings occupied by employees. Asks for a hospital for acute cases. Graduated a full class from a training school. Notes that recent recoverable cases are to be guarded from overwork rather than from rest.

Hudson River State Hospital.—Chas. W. Pilgrim, Supt. (Report, 1895). Statistics: Recovered 21.5%, improved not stated, general paresis 7.6%, deaths from consumption 25%, weekly per capita, \$3.92. Proportion day nurses 1 to 7 patients; night nurses, 1 to 62 patients. School for patients now doing well in its second year.

Bloomington.—Samuel B. Lyons, Supt. (Report, 1895). A private hospital. Statistics: Recovered 17%, improved 40%, general paresis 11.4%.

Central Indiana Hospital, Indianapolis.—Geo. Edenharter, Supt. (Report, 1896). Statistics: Recoveries 27.1%, improved 22%, general paresis 2.3%, consumption 20%, average daily attendance 1,531, per capita cost, \$168.95; per capita, current expenses only, \$145.

NOTES.—Has a new laundry at a cost of \$35,000. A separate building for pathological work has been built. As a separate building this is quite complete and a rather novel and progressive idea, and we hope will be an example for others to follow. The superintendent asks for a separate building for a hospital, a separate building for contagious diseases, and a separate building for acute cases. He boldly states that these are very desirable even if there be no good chance of getting them at present. It might, of course, be claimed that these should have come before the pathological building, yet we do not know local conditions, and with the spirit manifested it is manifest that the clinical work is being well done.

Protestant Hospital for Insane, Verdun, Montreal.—T. J. W. Burgess, Supt. Statistics: Recovered 37%, improved 22%, paresis 7.6%, consumption 15%, number admissions 144.

NOTES.—Dr. Williams died during the year of blood poisoning. Superintendent asks for infirmary for sick patients. He has taken steps towards the forming of a training school. Is enthusiastic in getting along without restraint. Yearly per capita, \$160.07. Receives only pay patients. Over 64% of admissions were chronic incurables, nearly 40% showed heredity.

Periscope.

Under the Direction of the Following Collaborators :

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CLINICAL.

Loss of Muscular Sense. By Elizabeth Bundy, M.D. (The Phila. Polyclinic, May 2, 1896).

The following case is presented by the author. A man, 45 years of age, laborer, always in good health and a hard worker, of late a hard drinker, having been employed in a brewery where it would appear that the beer flowed freely.

In September, 1895, he noticed what he calls numbness of the hand and foot; this was not at first constant but soon became so, and gradually he has reached his present condition. The "numbness" is worse, and he cannot easily recognize the position of his left hand or foot in action. If he wishes to open a door with that hand, he is not sure he has grasped the handle without looking to see. In getting down from the wagon he is not sure he has placed his foot in the proper position unless he makes decided pressure with it. He cannot approximate finger tips promptly and accurately with eyes closed. His estimation of weights varies with the two hands.

Tactile temperature and pain sensibility unimpaired. No knee-jerk, no motor paralysis. Station fairly good. Shows a tendency to stumble with left foot. Associated movement of fingers of left hand, when voluntary movement of either extremity is attempted.

MEIROWITZ.

Belladonna in the Treatment of Epilepsy. Féré, (*Journal des Connais Med.*, Nov. 21, 1895). The author shows that this remedy can, in severe cases of epilepsy, produce protracted improvement similar to that from the use of the bromides. It should not be neglected.

MEIROWITZ.

Chronic Tympanic Vertigo. By Chas. H. Burnett, M.D. (Phil. Polyclinic, May 2, 1896).

Chronic tympanic vertigo is one of the late symptoms of chronic catarrhal otitis media. It is paroxysmal in its occurrence and is always observed in company with tinnitus and deafness, which usually precede it by several years. Sometimes both ears are affected simultaneously. The vertigo is followed soon or later by nausea, vomiting, reeling and falling. This affection is sometimes erroneously termed Menière's disease, neurasthenia, biliousness, cerebellar disease, and epilepsy.

MEIROWITZ.

THERAPUTICAL.

The Employment of Hypnotics in General Medicine. Dr. Richard Drews (*Wiener Medizinische Presse*, Nos. 13 and 14, 1896).

Trionel is an ideal hypnotic—prompt and efficient. In doses of 1.0–2.0 gm. in adults, in children 0.2 gm. to 1.0 gm. it produces in one-quarter to one-half hour sleep which differs in no way from the normal, and it does not disturb the intellectual, respiratory or circulatory organs. Besides, it has no cumulative action and causes no habituation. It produces no gastro-intestinal disturbances and is practically innocuous. That there is little risk of poisoning from trionel is shown in the cases reported. Where, after enormous doses, 8–10 grammes, but temporary symptoms were produced followed by perfect recovery. Like the bromides it can be taken a long time without injury, but unlike them it causes no abstinence symptoms. It is analgesic and in sufficient dose may produce sleep even in painful conditions. It is more reliable and prompt than sulfonal and less toxic. Out of the many thousands of cases in which trional has been employed, one case of hematuria only has been observed, and here in connection with constipation and anorexia. All observers concur that it acts more rapidly than sulfonal, that its hypnotic effect extends over six to eight hours, and that it much more rarely gives rise to unpleasant after effects. These peculiarities in the action of trional can be explained on the ground of the behavior of this substance in the metabolism, in its prompt solution and decomposition. That it exerts no injurious action upon the albuminous metamorphosis is demonstrated by Schaumann. This gives trional great advantage over chloral, aside from the injurious action of the latter upon the heart and vascular system. In order to utilize the favorable effects of trional in the proper way, especial consideration should be shown to the dose and manner of administration.

To prevent the development of hematuria and to guard against all other after-effects of trional, the dose should

never exceed 2.0 gm. It should never be taken dry or followed by a drink of cold water, but simultaneously with its administration should be given a cupful of fluid as warm as possible, as for example, soup, tea, or milk. Its absorption is thoroughly facilitated and a prompt effect secured. During its employment it should occasionally be discontinued. To guard against any possible accumulation of unabsorbed trional, to accelerate its elimination and thereby prevent reduction of the alkalinity of the blood, some carbonated mineral water should be prescribed. It is also advisable to give at the same time some salt of citric or tartaric acid. The vegetable acids are converted into carbonates in the organism and these increase the alkalescence of the blood. Constipation should be promptly relieved.

The Exceptional S. Weir Mitchell, M.D. (*University Effects of Bromides. Med. Magazine, June, 1896*). The ordinary or excessive use of bromides sometimes occasions symptoms which are familiar in their milder expressions, but which are rarely seen in their aggravated forms; or if seen are not always attributed to the use of these salts. In certain people these extreme results are not due alone to the bromides. The prodromes of an epileptic fit may, because of the bromides, be intensified even in those whose attacks are being lessened in number. Irritability or melancholy is sometimes more marked at the time of menstruation in epileptics under free use of bromides. Trauma affecting the brain may give us to see excessive displays of bromic influence, causing bad temper, suicidal or homicidal tendencies and temporary delusions. Although, ordinarily, these salts do not disturb the circulation, they may do so when certain failure of heart-force exists (DaCosta). One of the earlier physical effects is a tendency to ptosis (Rudish). There are a few cases in which the bromides (sixty grains daily) cause at first a mere depression of spirits, which, save in rare instances, is not lasting. Now and then we find people who do not bear any effective dose of bromide, and who are in a state of moderate melancholia so long as we give the drug. Exceptionally this influence may rise to the grade of danger and occasion suicidal impulses. It is far more common to see irritability of temper caused by the bromides. In old epileptics this is laid to the score of the disease, but that it is not always of this parentage is a matter worth remembering in extreme cases. A tendency to destructive outbreaks, with unrestrained violence of temper, does in a few people, rise to the danger line. The use of the bromides should be remembered as one of the causes of sudden mania.

FREEMAN.

Book Reviews.

TRAITÉ CLINIQUE DE PSYCHIATRIE. Par le Dr. R. von Krafft-Ebing. Traduit de la cinquième édition allemande par le Dr. Emile Laurent. Paris, A. Maloine, éditeur, 1897.

The translation of Krafft-Ebing's work into French is the next best thing to having it translated into English. The volume before us is a French rendition from the fifth edition of the original. For those who prefer French to German, and who cannot have what they want in English, this translation will be useful and welcome. When the ideal universal language of science is adopted let us hope that it will be English, but until that day let us equally hope that German works will be translated into either English or French. We have often wondered in fact, that Krafft-Ebing's great classic—so invaluable for the English student who wishes to gain an insight into German psychiatry—had not been rendered long ago into our native tongue.

Krafft-Ebing's work is colossal in the mere physical sense. It has more than 700 large, closely printed pages; thus it is much larger than the average American or English text-book on insanity. This great bulk is chiefly due to the author's method of analyzing his subject. Following the continental plan, the subject matter is divided into two main parts. These treat respectively of *general* mental pathology and of *special* or clinical mental pathology. Thus the author in the former part, under appropriate heads, discusses causes, symptoms, pathology and therapeutics in general, and for the time apart from the clinical forms in which they are manifested. Thus, practically, a series of elaborate monographs precedes the clinical descriptions. The one great objection to this plan is the fact that it necessitates going more than once over the same ground, and the separation of essential portions of a subject. We suppose it is this objection that has almost banished this method of composition from most of our general text-books of medicine. It is now an author's custom to plunge at once into his clinical subject; to describe special disease after special disease as he finds them at the bedside; and not to consume one-half of his pages with a general treatise on symptoms, etiology, morbid anatomy and treatment considered in artificial groups and not as they are found in nature. The tendency of modern pathology is to specialize; to mark out one disease as distinct from all others; to trace causes which are limited and direct. The importance to Krafft-Ebing, however, of his own method is shown in the fact that he consumes more than 300 pages before he comes to the clinical description of the various forms of insanity.

But while we are alive to the few disadvantages that arise from such a plan, we are thoroughly alive also to its many advantages as applied to psychiatry in Krafft-Ebing's work. These preliminary chapters, or as we may almost call them, monographs, are of great value to the student of mental pathology. There is a distinct advantage in having a general sub-

ject isolated from its special manifestations and treated exhaustively from every point of view.

Krafft-Ebing divides the general subject of mental pathology according to the old scholastic distinction of intellect, will and emotion. This is well enough for analytical and didactic purposes, but the student should never forget that in nature there is no such division possible. In the clinic we cannot indulge in such dissection. In spite of Krafft-Ebing we do not believe in a distinct moral insanity in the sense that only the moral faculty is involved. There is no distinct "insanity of emotion" nor "insanity of will," nor does Krafft-Ebing claim that there are such clinical forms.

His historical studies, though brief, are of great interest in Krafft-Ebing's book. The history of psychiatry, he says, is a short chapter in the history of mental diseases. The author shows his talent, in this brief study, for massing his facts and bringing out in clear historical perspective the few main ideas that have underlain the development of this important science. He demonstrates clearly that the ancient school, from Hippocrates to Caelius, had a *scientific* conception of insanity. For them it was, at least, a disease of the brain, and not an object of superstition or of metaphysics. Their error was in following too slavishly the crude humoral pathology of the father of medicine. In marked contrast with the scientific spirit of the ancients was the degrading superstition that came to prevail in Christian countries. Under priestly influence psychiatry, if it could still claim that title, fell to its lowest depths. All insanity through all the dark middle ages was simply an evidence of demon-possession. This gross superstition, having gained an entrance into the primitive Christian literature, held sway for many centuries. To it, more than to ought else, can be attributed the fact that the insane were often regarded as outside the Christian pale, and were treated with a barbarity and lack of intelligence that must forever furnish the gravest arraignment of the system which was responsible for these abuses. Krafft-Ebing shows that under this clerical influence, the insane were without proper support, and proves that the first humane ideas for establishing hospitals for these invalids took their rise in Mohammedan and not Christian countries. When, finally, a spirit of philanthropy supplanted mere clericalism, one of its first cares was the establishment of hospitals for the insane, and one of its best results was the establishment of psychiatry among the other natural sciences. Krafft-Ebing says justly that this work began and went forward especially in England, France and Italy. He makes the curious observation that the progress of the science of insanity was greatly retarded in Germany by the dominance of the metaphysics of Kant. When we reflect that Kant was a reactionist against the school of Locke and Hume in England, a school which had attempted to place psychology on a scientific basis, we see that not a small part of the penalty paid by Germany for her transcendental philosophy were the unscientific and mystical writings on insanity of Heinroth and of Idler.

Among the more important of these chapters is the one on "ideas obsedantes" or imperative conceptions. Krafft-Ebing claims that these ideas are caused by the excitation of representative centres, and that they do not arise by the ordinary physiological way of association of ideas. In other words, as we understand him, these obsedent ideas are to the intelligence what hallucinations are to the sensorium—they are essentially spontaneous and morbid. The facts that they are usually so absolutely without the control of the will, and that they dominate the consciousness so completely, are in proof of this to our minds. Whatever criticism may be made of it, this theory is certainly suggestive and far reaching; and, moreover, serves to illustrate the power of psychological analysis which the author so frequently displays in his book. These imperative conceptions, finally, thrive on a basis of neurasthenia, which Krafft-Ebing recognizes fully may be acquired as well as hereditary. This recognition,

it seems to us, is important. There can be no doubt that too much tendency has been shown to ascribe such mental phenomena to an hereditary constitutional taint, and it is satisfactory to know that our author holds a liberal view on the subject.

The chapter on delusions ("Ideas Delirantes") is a fine exposition of this, to many, difficult subject. Krafft-Ebing distinguishes between delusions and erroneous opinions in a way that should be helpful to the expert witness who has to face the sophisms and prejudices of the courts. The central point, it seems to us, in this distinction (and one which should have been detected and emphasized more clearly before this in American text-books) is that an insane delusion is always primarily an affection of the Ego. It is the element of self that is involved in a delusion in a way that is never seen in a mere error of opinion. The Ego is the pivot about which the morbid structure revolves. This fact can be readily put to the test by critically analyzing any lunatic's delusion and then by comparing it with any opinion, however extravagant, in religion, politics, or morals, of a sane man. It is at once seen that in the case of the latter the Ego has a distinctly different and more remote relation to the concept than in the case of a delusion. The author discusses delusions in all their aspects; their kind, their mode of origin, their clinical significance, their relation to the psychical life, and to the patient's antecedent mental life. It is quite impossible in the space at our command to do full justice to this able study.

Under the head of affections of instinct (p. 97) Krafft-Ebing discusses the subject of sexual perversion—a subject which, unfortunately, has made his name rather notorious in this country. As was to be expected, the theme is treated with a firm hand and thoroughly dissected; but, of course, this is done much more briefly and less conspicuously than in his monograph. Consequently, this Paphian subject seems less offensive than when given to the world in a special treatise. It is a legitimate—nay, even a necessary—subject for scientific study, but its more scientific setting in the author's present treatise saves it from the reproach of prurience which undoubtedly has been brought with justice against the other book.

In the discussion of the causes of insanity, Krafft-Ebing traverses an immense field, and has succeeded in elaborating what is, perhaps, the most complete and perfect exposition of this subject in any text-book. He brings to this task extensive learning, and, what is better, an admirable critical faculty. Each factor receives its due recognition and no more. The author evidently rides few hobbies, and follows no man's lead in this most important and often ill-defined field. The immense range of his studies in etiology may be judged when we merely state that it includes such subjects as occupation, heredity, age, sex, social condition, imprisonment, crime, alcoholism, opium and the drug-habits, pregnancy and the puerperium, acute infectious fevers, surgical operations, syphilis and the various chronic poisonings. All these vital subjects and many others are treated in detail, so that it may be truly said that each section is a concise and complete monograph on its particular theme. When we consider how perfunctorily this work is done in many text-books, this exposition by Krafft-Ebing appears to immense advantage.

A few points only need detain us. On the subject of occupation the author is cautious; he does not attribute too much to this factor. The sexual factor is perhaps exaggerated in some places. In discussing the much mooted question of imprisonment, the author wisely discriminates among prisoners as to which class of them is most injured by solitary confinement, and finds it especially in those whose morbid propensities require some social diversion. He does not inveigh unreasonably against the "system *Pennsylvanien*," although he or his translator spells the name incorrectly. On the grave question of heredity he is admirably conservative, and does not overdo the subject, nor

find it, as some would, an invariable and unfailing factor. Considering his over-use later on of the word "degeneration" this conservatism here is noteworthy.

He is careful to tell us that Schopenhauer, another German mystic, was the grandson of one idiot and grandnephew of another. He emits the pregnant truth that even with a bad heredity the organism may reach a superior development when the conditions are favorable, and only succumb to psychical degeneration when they are unfavorable. The author might have made the distinction more clear between traumatic hysteria and traumatic insanity when discussing trauma as a cause. He thinks the insanity following surgical operations is sometimes due to the chloroform and iodoform, but that after castration in the female the type is melancholia (and apparently due to a psychical impression, it has seemed to us).

In the discussion of the acute febrile and infectious diseases as causes of insanity, we get almost the only inkling that the author gives us of his appreciation of the modern bacterium. In this respect we think more can be said about the infectious origin of insanity, and hence this portion of the book is rather disappointing. Is there no possible infectious form of insanity apart from those caused by the typical fevers (typhoid, etc.)? Krafft-Ebing does not seem to us to recognize fully the possible action of various toxins in producing insanity. Yet his section on the insanity of acute inflammatory rheumatism is very full. Puerperal insanity is discussed entirely under etiology and not as a distinct clinical form. This may seem rather odd to American readers, who are accustomed to hear and read about it as a clinical entity; and yet this plan is perfectly consistent with the author's method of discussing etiology as a general subject. The truth is, there is no distinct puerperal insanity, but rather several varieties of psychoses and infectious deliria due to pregnancy, the puerperium and lactation. Here again, it seems to us, Krafft-Ebing fails to give its due prominence to sepsis.

The advantages of a separate generalized view is not so apparent in a study of the course and prognosis of insanity. One curious result of this method of analysis is that *Folie Transitoire* is included in this division and not in the special clinical studies; but on looking more closely we find that this *folie transitoire* has hardly an identity of its own, but is merely a phase which may be displayed by several forms of insanity.

Under the head of general diagnostics is a most elaborate scheme for examining the insane. It is enough to say that he who would follow this scheme in detail, and fill it out conscientiously in every case would probably in time become a most expert as well as voluminous chronicler of symptoms. It has value for educational purposes.

The section on general treatment has to do with a discussion of individual drugs in their applicability to symptoms as they arise in the various forms of insanity. In other words, this plan gives the author an opportunity to give to drugs for the time being the importance that comes from their being the subject matter of his discourse. Take opium with its derivatives, for instance. Krafft-Ebing gives in detail its effects and the indications for its use in all forms of mental disease. Thus, in condensed form, all desirable information about the drug, as well as the author's opinions respecting its use can be found in one place. Hypnotism, in Krafft-Ebing's opinion, is not adapted to the great majority of the insanities, but only to some forms of the functional psychoses.

The second half of the book is devoted to special clinical pathology. In this division the various clinical forms of insanity are described. This portion is introduced by the author's scheme of classification, which is already probably well known in this country. This scheme is based upon the essential distinction between mental diseases that have no anatomical lesions ("Psychoses Fonctionnelles") and those that have such lesions ("Psychoses Organiques.") The first class is subdivided into the well-

known psycho-neuroses on the one hand and the degenerative types on the other.

To criticize this or any scheme of classification is easy enough, because, unfortunately, men cannot classify what they do not thoroughly know, and we do not yet thoroughly know any form of insanity. The obvious weak points in Krafft-Ebing's scheme are, first, his forced assumption that such diseases as mania and melancholia are without anatomical lesions, although he, himself, of course, admits that they run into terminal dementia and terminal dementia even to the naked eye is not often without anatomical lesions. Of course, the truth is, there are no purely functional psychoses. The term is a misnomer, a solecism. A second weak point is his decidedly arbitrary use of the word "degeneration." Too much is swept into this bottomless pit—and we may also say that too much is kept out of it. For instance, are mania and melancholia never seen in degenerates? Are these two psycho-neuroses, so-called, never the results of heredity, but always diseases of a sound brain? Krafft-Ebing himself calls attention to the large element of heredity in the puerperal insanities; and yet these insanities usually take one form or the other of these psycho-neuroses.

Again, is systematized delusional insanity always a paranoia in the sense that it must necessarily be constitutional and degenerative? Is it never acquired, like a psycho-neurosis, by a sound brain? Is there any warrant for dogmatic assertions on these points? We believe that Magnus had truth on his side when he contended against the partisans of monomania for a systematized insanity of an acquired type, just as a psycho-neurosis is acquired. Krafft-Ebing even admits an "acquired" degeneracy. But if a degeneracy that runs into systematized delusions is acquired and has no anatomical lesions, why is it so radically removed from a psycho-neurosis, which also is acquired and has no anatomical lesions? It seems to us that, in our ignorance of the real changes in the neurons underlying these states, this is not much else than a distinction of words.

Krafft-Ebing, it is true, claims no more for his classification than a clinical significance. As pathology advances an increasing number of forms will probably be added to his second main division, i. e., those which have recognizable anatomical lesions.

Krafft-Ebing's descriptions of the clinical types of insanity are, of course, for most readers, the most important portions of his book. A detailed criticism of them here is impracticable. We may say in brief that they have impressed us as displaying a more profound psychological analysis than is commonly found in American and English text-books, excepting Clouston. They remind us in this respect not a little of Clouston, although not so discursive and pictorial in style. The author is evidently a mind-reader in that best sense that makes an expert alienist. He is a psychologist as well as a brain-pathologist. In this respect we have been impressed all through his pages with the fact that we were following a writer who has many claims to be called eminent and even original.

To the two classical psycho-neuroses, melancholia and mania, the author adds stuporous insanity and "folie hallucinatoire." This latter is the type of delirious insanity with hallucinations that occurs especially after the infectious fevers, the puerperium, and other exhausting states, and is sometimes called confusional insanity. It is undoubtedly a distinct type and is worthy of a special place in nosography.

The degenerative types, paranoia and circular insanity, find, of course, a very full exposition in Krafft-Ebing's book.

It strikes us as rather odd, that in the account of acute delirium nothing whatever is said about the possibility of this form of mental disease ever being due to infection. This is one of the most fertile fields, not for mere speculation, but for solid pathological work in the whole domain of

psychiatry. Some recognition might have been given to this fact, instead of confining the pathological description to a statement of a mere vascular and mechanical theory of the origin of this important disease.

Krafft-Ebing emphasizes the fact that the delusion of grandeur is not essential or specific in general paresis, as some seem to think. This chapter is perhaps too analytical—the picture of the disease does not stand out in its entirety so characteristic as we should have expected.

In treatment, Krafft-Ebing's book is very full. He evidently has great belief in opium, especially in melancholia, and he brings prominently forward in places the claims of hydrotherapy.

In conclusion, we can only repeat that this translation of this great work into French is a distinct gain, because it makes the book more accessible to a large circle of readers.

JAMES HENDRIE LLOYD.

LES NÉVROSES TRAUMATIQUES—ÉTUDE PATHOGÉNIQUE

By Dr. Crocq., son. Paris. Société d'éditions scientifiques. 1896. Monograph crowned by the Paris Academy of Médecine.

In the book before us the whole subject of traumatic neurosis is given a critical review. On the ground of the casuistic material on hand which includes some personal observations of the author, the latter reaches the conclusion that a certain number of the nervous disorders which have been classed under the common heading, traumatic neurosis, depend on organic lesions. For this reason the name, "traumatic neurosis" is not appropriate; but it perhaps is not bad to continue, with the proper restriction, the use of the nomenclature, as the diseases concerned form a definite group from a medico-legal point of view.

The book is divided in six chapters. The first gives a historical review, the second discusses the pathogenesis, the third the etiology. The fourth chapter gives the pathological anatomy, (as the author finds that a number of cases designated as traumatic neuroses are actually based upon organic lesions. The apparent contradiction, which lies in speaking of the pathological anatomy of traumatic neurosis is explained). The fifth chapter treats on the symptomatology, the sixth on the diagnosis, the seventh on the prognosis, the eighth on the treatment.

In classifying the traumatic neuroses C. makes two principal divisions:

A. Grave traumatic neuroses with commotion and probable organic lesions. (*Névroses Traumatiques graves avec commotion et lésions organiques probables*).

B. Pure, functional traumatic neuroses. Under these latter, the author includes:

1. Local traumatic hysteria.
2. General traumatic hysteria
3. Local and general traumatic hysteria
4. Traumatic neurasthenia.
5. Traumatic hystero-neurasthenia.
6. Traumatic chorea.
7. Traumatic epilepsy.
8. Traumatic Parkinson's disease.
9. Traumatic ties convulsifs, etc.

In characterising this group (B), the author states that it comprises all cases in which an organic lesion can be excluded. It seems somewhat

strange, however, to see, for instance, traumatic epilepsy classed here under the designation of a pure functional neurosis. Parkinson's disease looks also somewhat strange under this heading. Although the pathological anatomy of this disease is still rather obscure, we yet can hardly conceive that there should not be some organic lesion behind it which could not be discovered yet by means of the technic at our disposal.

C. attributes but little importance to the traumatism itself in the causation of the diseases of this group. He finds on the contrary that the emotion connected with the circumstances under which the traumatism took place, is the chief etiological factor.

It is quite otherwise with group A, the grave traumatic neuroses dependent upon organic lesions. There the manner of the traumatism is etiological of great importance, while the moral emotion plays an insignificant part. As has been affirmed by Vibert, the traumatism producing these forms of the disease were of a nature to produce a more or less violent physical concussion as, for instance, railroad accidents, in-breaks, falls, explosions, violent shocks on the head, and the like.

It would lead too far to enter upon the symptomatology, etc., of the grave forms of "traumatic neurosis," which are described in an attracting and interesting manner. Be it added, however, that according to Crocq's view, in accordance with that of Erichsen and Vibert, the organic lesion underlying these grave forms of "traumatic neurosis" is probably in most of the cases a chronic meningo-encephalomyelitis diffusa.

On the whole the subject is treated thoroughly and critically and the reader will find the book a convenient guide on the literature of the subject which it discusses.

B. ONUF.

CONTRIBUTION À L'ÉTUDE DES ÉTATS CATALEPTIQUES DANS LES MALADIES MENTALES. By Dr. P. Le Maitre. Paris 1895. G. Steinheil, Pub.

There are but few observations of idiopathic catalepsy. On the other hand the number of symptomatic catalepsies increases every day; one has observed them in typhoid fever, in uremia, in intermittent fever, in acute articular rheumatism. The purpose of the book before us was to study those catalepsies which occur in the course of the mental diseases. The author comes to the conclusion that the cataleptiform states observed in the insane are dependent upon a certain psychical state and have only the value of a symptom, which can develop in the majority of the mental diseases. Instead of representing a special morbid entity the cataleptic states are generally only a sign of stupor developing on the ground of heredity.

The plan according to which the contents are arranged is the following: The first chapter gives a historical review of the subject. The second chapter speaks of the general characteristics of the cataleptic states in mental diseases. Chapters three to eleven describe in detail the cataleptic conditions as observed in various forms of mental disease, viz., in toxic (alcoholic) delirium, in melancholia, in mental confusion, in mania (or rather in the depressive stage following mania), in periodic insanity, in the insanity of degeneracy (*délire des dégénérés*), in mental feebleness, congenital or acquired, and in epilepsy.

For each group observations are adduced, altogether of 19 cases. Five of these were personal and are very carefully described. The personal observations concerned are: case of catalepsy with echokinesia and echolalia in mental confusion, two cases in the group of mental degeneracy, and two cases in mental feebleness.

In the great majority of cataleptiform conditions as observed in mental diseases, hysteria took no part in the production of these states. When hysteria co-exists with a psychosis, it may produce typical hysterical catalepsies in the course of the latter.

These hysterical catalepsies are discussed in the eleventh chapter, Chapter XII. is taken up with a discussion on Kahlbaum's catatonía, and the author gives in the end expression to the view that Kahlbaum's catatonía does not exist, that the cataleptic phenomena occurring with psychoses develop on the base of stupor, in a nervous system predisposed by heredity.

Chapter XIII. treats on simulation of cataleptiform attitudes as observed both in insane (enacted there under the influence of a morbid state) and in healthy individuals (to escape penalty, etc.). A very typical instance of simulation of catalepsy in a healthy individual is given.

The book ends with a summary of the conclusions reached. Of these it may be interesting to mention those concerning the occurrence of cataleptic states in epilepsy, where they may either take the place of epileptic seizures, certain attacks of catalepsy resembling absolutely *epilepsia larvata*, or precede epileptic fits.

The interesting subject of the book is treated in such a thorough and attractive manner as to make it highly worthy of study. ONUF.

LE FONCTIONNEMENT CÉRÉBRAL PENDANT LE RÊVE ET PENDANT LE SOMMEIL HYPNOTIQUE. By Dr Laup- TIS. (Annales Médico Psychologiques, 1895. No. 3.)

Laup-tis in studying the phenomena of dreaming came to the following conclusions:

The dream is due to partial function of the brain. There are dreams of images, dreams of sentimental or instinctive acts called forth by the former, or caused by a certain state of the organism. The one seems to be due to a partial awakening of the anterior brain, the others to that of the posterior brain. These dreams may imply reasonings, association of complete ideas, the arousing of the most complicated manifestations of the character.

The principle differences distinguishing the dream from the wake state are:

1st. The lack of logic coördination of the various elements of the dream.

2nd. The absolute passivity in the presentation (apport) of the materials. In the course of the dream the images, the reasonings move on in an absolutely automatic fashion and can be modified by the sleeper.

There is a state which comes very near the state of awakening, which condition is observed only in nervous persons. It is characterized by the sharp definition of the images, their hallucinating character, the possibility of a certain auto-observation, and the accompanying hyperæsthesia. We can consider it as the limit of the dream, the state which is nearest the wake state.

The wake state necessitates the function of a centre of superior intellectual co-ordination of fixation and elaboration of the materials furnished by the other centres. The admission of the existence of such a centre leads to the following definitions:

Sleep of a centre: State of cessation of the psychogeneons function of this centre.

Complete normal sleep: State of cessation of the psychogeneous function of the entire brain

Partial sleeps. Dreams: State of rest of the superior centre, partial or total function of other centres (partial or generalized dreams).

Wake State: State of function of the superior centre (with perhaps possible sleep of other centres).

Hypnotic sleep: State of deep and lasting sleep of the superior centre, the state of the other centres differing from the normal state only by cessation of their communications with the superior centre, from which results a greater intensity of their function. ONUF.

GUIDE MÉDICAL PARISIEN. Published by "L'Indépendance Médicale." Paris, 1896.

In publishing this little volume, *L'Indépendance Médicale* supplies a want long felt. This book will prove not only useful but indispensable to foreign physicians who intend to spend some time at the medical institutions of Paris.

A glance at the book will convince one of the time that the visiting physician in Paris would save by a daily reference to it.

The guide describes successively the Faculty of Medicine, the Hospitals, the Insane Asylums, the Special Establishments, Important Clinics, Museums, Libraries, Etc.

The description of each establishment is preceded by a short history; the teaching of the "Master" is indicated in detail; the organization of each service is exactly described. MEIROWITZ.

DES VARIÉTÉS CLINIQUES DE LA FOLIE EN FRANCE ET EN ALLEMAGNE. (The clinical varieties of insanity in France and Germany.) By J. Ronbinovitch, with a preface by Prof. Joffroy. Paris, 1896.

A comparison between the German and the French classification and terminology of mental diseases will show surprising differences. The author shows that these differences result not from the fact that the diseases are different, but from a different conception of mental pathology. While French authors take into consideration the clinical evolution, the etiology, and the results of pathological anatomy, *i. e.* the anatomico-clinical *ensemble*, in characterizing morbid species, the Germans depend almost entirely upon the state of the physical and psychic development of the brain.

This work will prove of value to such whose studies have lead them to consult the German and the French literatures and who have experienced the confusion resulting from different terminologies.

MEIROWITZ.

HYSTÉRIE. By Dr. Voronoff. Paris, 1895. A. Maloine Publisher.

This book is a short treatise on hysteria destined for the use of the general practitioner. To the neurologist it does not pretend to offer anything new; but may be of some use to him through the numerous literary references. The latter are tabled in an index giving an alphabetic

list of the authors and the pages on which they are quoted. The drawback is that the list contains nearly exclusively French authors.

The subject matter is divided into seven chapters or paragraphs treating on the etiology, the symptomatology, the syndromes *hystériques simulateurs*, the morbid associations of hysteria, the mental condition, the definition and the treatment of hysteria respectively. The book contains 118 pages, which, however, number only about 150 words each so that the subject is given in a concise and handy form. ONUF.

THE LITERATURE OF PSYCHIATRY, NEUROLOGY, AND
PSYCHOLOGY IN THE XVIII CENTURY. 2nd Edition.
By Dr. Heinrich Laehr.

The second edition of this work of 215 pages was compiled in honor of the 50th anniversary of the provincial asylum Nietleben, near Halle. It is a valuable compilation, giving the names of authors and their works, and the size, number of pages and place of publication of the latter, brought forth in the Eighteenth Century. In turning over the pages of this work, one is struck by the large number of productions, written in Latin. The majority of these have never been translated. A knowledge of the Latin language is therefore indispensable to one who would study the evolution of this branch of medicine. About 900 authors contributed to the literature of mental and nervous diseases in the 18th century.

MEIROWITZ.

NEW BOOKS RECEIVED.

ANATOMY, DESCRIPTIVE AND SURGICAL. By Henry Gray, F.R.S. Published by Lea Brothers and Co., Philadelphia and New York. \$6.00 cloth.

AN AMERICAN TEXT BOOK OF PHYSIOLOGY. Edited by William H. Howell, Ph.D., M.D. Fully illustrated. Price, cloth, \$6.00; sheep, \$7.00; half morocco, \$7.00. W. B. Saunders, Philadelphia, Pa.

AN AMERICAN TEXT BOOK OF APPLIED THERAPEUTICS. Edited by J. C. Wilson, M.D., assisted by Augustus A. Esher, M.D. Published by W. B. Saunders, Philadelphia. \$7.00, cloth.

Dr. Milner Fothergill wrote: "The combination (Fellows' Hypophosphites) is an excellent one—the best yet made, to my knowledge. It is a happy thought. It is a good all-around tonic, specially indicated when there is nervous exhaustion. It is readily digestible, and has given much satisfaction in my experience of it."

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THE
Journal
OF
Nervous and Mental Disease

JOINT MEETING OF THE PATHOLOGICAL SOCIETY OF PHILADELPHIA AND THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Held in Philadelphia May 28, 1896.

Dr. JOHN H. MUSSER, in the chair.

AN INITIAL REPORT FROM THE NEUROLOGICAL LABORATORY OF THE PHILADELPHIA POLYCLINIC.

UNDER THE DIRECTION OF

ALOYSIUS O. J. KELLY, A.M., M.D.,

Pathologist and Clinical Assistant to the Neurological Department.

The Neurological Laboratory is a part of the Department of Diseases of the Mind and Nervous System in charge of Professors CHARLES K. MILLS and CHARLES W. BERR, who furnish most of the specimens.

LESIONS OF THE BRAIN FOUND IN A CASE
OF ACUTE YELLOW ATROPHY OF THE
LIVER.

By CHARLES W. BERR, M.D. AND ALOYSIUS O. J. KELLY, M.D.

THE clinical history of the case is as follows: B. D., male, aged forty years. His previous health had always been good. Having felt poorly for about one month, one week prior to his death he began to complain of chilliness, sweats and vague gastro-intestinal symptoms. His wife then noticed that he was slightly jaundiced. The jaundice rapidly increased in intensity, until before his death it was extreme. On the second

day of his illness he began to be delirious and to have general convulsions. The liver dulness became very much decreased in area. The patient vomited often, and his bowels were absolutely constipated. The urine contained leucin and tyrosin, but no albumin. Two days before his death, his delirium passed into stupor, stupor into coma, and in coma he died, Dec. 28, 1895.

The clinical diagnosis was acute yellow atrophy of the liver.

At the necropsy the liver was about one-third the normal size, brown in color, and with wrinkled capsule. It was peculiarly soft to the touch and cut like india rubber. On section the liver structure was indistinctly visible in the right lobe, but absolutely abolished in the left. There was some oozing of bile. The gall bladder contained about an ounce of thick, greenish-black bile, with a little bile sand. There was no obstruction of the ducts, no calculi. The stomach contained a few ounces of bile-stained fluid, but was otherwise normal. The spleen was slightly enlarged and soft. The kidneys were congested, the capsule stripped well; the cortices were well marked off. The brain macroscopically appeared normal.

For the specimens we are much indebted to Dr. L. C. Peter.

The lesions discovered by microscopical examination of the brain may be divided into those found in sections prepared according to the Golgi method and its modifications, and those found in sections stained according to the Nissl methods and modifications. It is convenient to describe the latter first.

Sections from the motor and præfrontal regions of the cerebral cortex after the usual procedures subsequent to hardening in alcohol, were stained with dahlia, vesuvin, magenta red, methylene blue and thionin. While the majority of the stainings with the first mentioned agents were very satisfactory, none of them approached in clearness and sharpness of detail those stained with thionin, according to the method of Lenhossek. The stainings were far superior to those obtained with the much vaunted methylene blue, which latter were, however, better than those obtained with the other dyes. What follows, therefore, refers particularly to thionin preparations, though precisely similar changes were disclosed by the other stainings.

The pathological lesions discovered affect the nucleolus, the nucleus and the cell body (Fig. 1). Normally,



FIG. 1. Drawing illustrating parenchymatous degeneration of the cells of the cerebral cortex; implication of the nucleolus, nucleus, and cell body. The cells in the upper half as in a microscopic field; in the lower half, collected from various regions. N. C., normal cell for comparison. Thionin preparation. x 1200 Zeiss.



FIG. 2. Drawing illustrating irregular swellings or tunefactions of the dendrites, with loss of the gemmulae, of a pyramidal cell of the cerebral cortex—early stage of degeneration. Golgi-Berkely preparation.



FIG. 3. Drawing illustrating atrophy and disappearance of the dendrites—late stage of degeneration. Golgi-Berkely preparation.

the nucleolus is of a definite size, of rounded contour, with edges smooth and well defined, and has a certain marked, not very variable affinity for the stain. In our preparations the nucleolus is very slightly, if at all, increased in size: it is of somewhat irregular contour, which irregularity is not marked, consisting when demonstrable of a slight and limited projection into the substance of the nucleus at one, occasionally two points, along its periphery; its edges, while sharp and well defined, are not as smooth as normally, and its receptivity of the stain is markedly increased, it appearing as a jet black dot, rendering absolutely futile all attempts to recognize any structure. In its position within the nucleus we can recognize no deviation from the normal, it being situated here and there irregularly as normally.

The nucleus, while apparently exhibiting no marked deviations from the normal variation in size, is frequently distorted in shape, being often elongated, again quite irregular with projections and indentations along various parts of its periphery. The two or three larger and more deeply staining chromophilic particles normally present irregularly arranged within the nuclei, are no longer visible as such. They have lost their identity by reason of the excessive staining which the other finer dust-like chromophilic particles have thus pathologically taken on. The normally clear karyoplasm evinces a decided affinity for the stain, being in many instances excessively stained. This staining of the normally clear karyoplasm and the excessive staining of the nuclear chromophilic particles in many instances, produces such an intense staining of the nucleus as a whole as to obscure the nucleolus, which, in other instances can be quite distinctly recognized.

The cell body seems to be most intensely affected, their being present all gradations from slight implication to almost absolute destruction of it. The chromophilic particles, which normally are distributed throughout the cell body with a certain regularity usually in rows, are in our preparations very irregularly arranged, often showing very curious figures. We notice in some cells but a slight deviation from the normal, the chromophilic particles having disappeared from but a small area, and being possibly more densely aggregated in another region. From this slight change there are visible all gradations of destruction until there remains but the nucleus deeply stained, surrounded by a few particles still stained along the periphery of the cell

body. In many instances the chromophilic particles are excessively large. One is inclined to think of a coalescence of smaller ones, as high magnifications (1200) fail to reveal any distinction into parts. In cells manifesting all grades of destructive changes, there is usually arranged around the nucleus a layer of fine, stained dust-like particles, between which and the nucleus, there is always a clear unstained zone.

In some instances the nucleus and cell contents have been entirely destroyed, or the nucleus has dropped out of the cell, and all that is discernable are a few fine stained particles along what was the periphery of the cell. In many cells which are not so excessively affected by the destructive process, there is an appearance extremely suggestive of fat globules and detritus. The fat therefrom may unfortunately have been removed during the process of hardening.

The protoplasmic processes as far as they are stained present in some instances changes similar to those described as affecting the cell body. In most instances, however, they exhibit no deviation from the normal.

The pathological changes described affect all varieties of cortical cells. We have been unable to discover that any one variety is more affected than another. In spots, however, the destructive process has been more marked than elsewhere. In certain regions all the cells in a quite considerable area are more or less destroyed, while in others but few cells are implicated. This applies to all the layers of cortical cells. Again, in a few places it seems as though the more superficial cells were more intensely affected than those of the deeper layers. These instances, however, are very few.

Other pieces of cortex after hardening in Müller's fluid were stained according to the silver phosphomolybdate method of Berkely. The difficulty of determining, by this and the ordinary Golgi method of staining, the number of cells affected is very great owing to the uncertainty of the impregnation and to the fact that of all the cells of the various layers of the cortex but a very few are at any one time stained. This latter fact is, however, a great advantage, as we are thereby enabled to study much more readily the changes affecting the individual cells and their prolongations. This method of staining is inappropriate for detecting the finer changes in the cell body, and in our preparations gave negative results. The changes affecting the prolongations are, however, quite definite. They are of two kinds, or, as we

prefer to say, two stages of one process. The first consists of a swelling (Fig. 2), the second of an atrophy of the processes (Fig. 3).

The first are more numerous. They consist of irregular swellings or tumefactions which extend along the dendrites for a variable distance, and are of variable thickness. Some are very minute, others quite large. The apical process itself is very frequently affected close to the cell body proper. In other instances the parent dendrite and its finer branches abruptly become thickened, and as abruptly resume their normal calibre. As a rule, throughout the course of these tumefactions the gemmulæ are absent, though occasionally one still detects a few projecting from the periphery of the swellings. Along some of the finer dendrites not the subject of such pathological tumefactions, the gemmulæ have also disappeared. In other instances they themselves appear somewhat swollen. The varicosities normally present at the point of branching of the dendrites appear in many instances to be excessively large.

The further stage of this destructive process has already been alluded to as an apparent atrophy. The gemmulæ have entirely disappeared from the dendrites—a very few may occasionally still persist. The dendrites themselves have become thinned and shortened. That they have not been broken or cut off during the process of preparation, is evident from the fact that at their distal extremities they appear rounded and well defined. Further, many of the dendrites have entirely disappeared. In some of these latter instances, as well as in some of the former, the apical process is still quite thick.

This destructive process affects apparently indiscriminately the various cells of the several layers of the cerebral cortex. The determination of the number of the implicated cells is, however, as before stated, impossible. We could detect no pathological changes in the axis-cylinders or collaterals.

The study of the cerebellum led to very indefinite results. Aside from variations in the intensity of the staining of the Purkinje cells, nothing of any note was discovered by the use of the aniline dyes. The impregnation of the cells of the cerebellum by the Berkely modification of the Golgi method was less satisfactory than was that of the cells of the cerebrum, but the alterations found in the Purkinje cells were practically the same as those described affecting the cells of the cerebral cortex. We detected no change in the neuroglia elements of

either the cerebrum or cerebellum, and no disease of the blood-vessel walls.

To sum up we have found evidences of a marked destructive process affecting the bodies and the processes of the nerve cells of the cerebral cortex. The lesion is parenchymatous affecting the nerve cells primarily, and is not secondary to any disease of the blood vessels. We are entirely ignorant of the primary cause of this destructive process. It is more than probable, it is almost certain, that acute yellow atrophy of the liver is caused by a poison, and that it is not a local but a general constitutional disease, a toxemia. And since cerebral symptoms, delirium, perhaps mania, general or local convulsions and coma form no small part of its clinical history, we should expect to find distinct signs of disease in the cortex whether such signs be the result of penetrated function or its cause. The fact that heretofore microscopic study of the brain in conditions of delirium, acute mania, and the acute infectious fevers has frequently been fruitless or indefinite, proves nothing, since we are only now beginning to learn methods of research competent to show any of the finer microscopic changes. As methods have improved, the number of so-called functional diseases has steadily decreased. Granting that acute yellow atrophy of the liver is a toxemia we are confronted with the question as to whether the brain lesions found are due to the same poison or whether they are due to another or to others produced by disturbance of any of the body functions. We cannot answer it. We have, of course, assumed that the lesions found by us in this one case are not accidental, but essential.

Whether this be so can only be proven by the study of other cases. The lesions found are, of course, not claimed to be characteristic of acute yellow atrophy of the liver. Indeed, we should expect to find similar changes in the acute infectious fevers accompanied by similar brain symptoms. As a matter of fact the lesions found in this case by using Berkely's modification of Golgi's method correspond to those found experimentally by Berkely in ricin and alcohol poisoning and are not unlike those described by Andriezen and others as occurring in certain types of insanity, notably alcoholic dementia.

That the case was one of acute yellow atrophy of the liver is proven not only by the clinical history and the necropsy, but also by the microscopical examination of the liver, spleen and kidneys.

SENILE PARAPLEGIA.

BY ALOYSIUS O. J. KELLY, M.D.

THE clinical history of the case is as follows: G. B., aged 79 years, widower, white, native of Scotland, jeweller by occupation, was admitted to the outwards of the Philadelphia Hospital, May 3, 1895, and to the men's nervous wards of the same hospital, February 13, 1896, and the following notes obtained:

No history of any hereditary disease. He was treated in the surgical wards of the Philadelphia Hospital during September, 1895 for urethral stricture, and subsequently again transferred to the outwards. He has been a moderate drinker; syphilis is denied. About three months prior to his admission to the nervous wards, he noticed that he was weak in the legs. He never had had any distinct apoplectiform attack. Two days before his admission, on attempting to arise in the morning he found that he was paralyzed from the waist down. He had retention of urine and incontinence of feces.

Examination on admission from the outwards revealed complete paralysis of all the muscles below the waist. There were no areas of anaesthesia. The third day after the paralysis came on, bed sores began to form over the sacrum and heels. Although he was put on a water bed, these bed sores rapidly became worse. Examination of the urine showed a trace of albumin and a large number of granular casts. Symptoms of uremia began to develop and spots of consolidation in both lungs could be detected. The fourth day after his admission he became delirious. The temperature never went above normal. He became rapidly weaker, and died seven days after admission, apparently of uremia (February 20, 1896, 5 P.M.)

Post-mortem examination by Dr. Jamison, February 22, 1896, 11 A.M. Body of well-nourished old man, a small bed sore over the left heel and a large one over the sacrum. Bladder distended and inflamed. Kidneys show parenchymatous and interstitial nephritis. Heart nor-

mal. Lungs emphysematous; a few spots of senile pneumonia. No gross lesions of the brain or spinal cord, except a chronic leptomeningitis.

For the specimen (spinal cord) and the above notes, I am very much indebted to Dr. Charles K. Mills.

Microscopical examination of the cord revealed changes which, though intimately associated in a causal relationship, it will be convenient to describe under two headings, first, those affecting the nerve fibres; second, those affecting other tissues.

Upper cervical region: In the postero-median columns, close to and parallel with the posterior two thirds of the median fissure, there is a narrow area in which the nerve fibres are diminished in number and in thickness. There is a quite marked degeneration of conical shaped area with base inward, bounded by the anterior one third of the posterior fissure, the posterior commissure, and the posterior cornua, and extending pointedly into the postero-external columns almost to the periphery. In the lateral columns not strictly localized to the pyramidal tracts although there much more marked, the nerve fibres are degenerated in part.

Cervical enlargement: The degeneration in the postero-median columns along the posterior fissure is more marked than in the previous section, while the conical-shaped area alluded to, is larger. The degeneration in the lateral columns is marked, but is not limited to the pyramidal tracts. While these tracts are much more affected than are other regions, the degeneration extends forwards into the anterior ground fibres.

Lower cervical: The degeneration in the posterior columns, while more marked along the posterior median fissure is distributed to some extent throughout the columns. The degeneration in the lateral columns as heretofore affects particularly and more markedly the pyramidal tracts, though it is not confined to them.

Upper, middle and lower thoracic regions: The degeneration in the posterior columns is much more general and much more marked than in previously described sections. The degeneration in the lateral columns is of about the same extent as in the last mentioned section.

Lumbar cord: The degeneration in the posterior columns is very marked. In the lateral columns as heretofore.

Sacral: The fibres along the lateral margin appear fewer in number and narrower than elsewhere

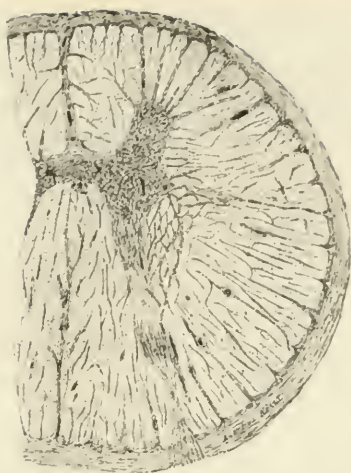


FIG. 1. Drawing showing the excessive intra-spinal overgrowth of connective tissue and its sources of origin, the sclerosis of blood vessels and pia mater. Ammonio-carmin preparation.

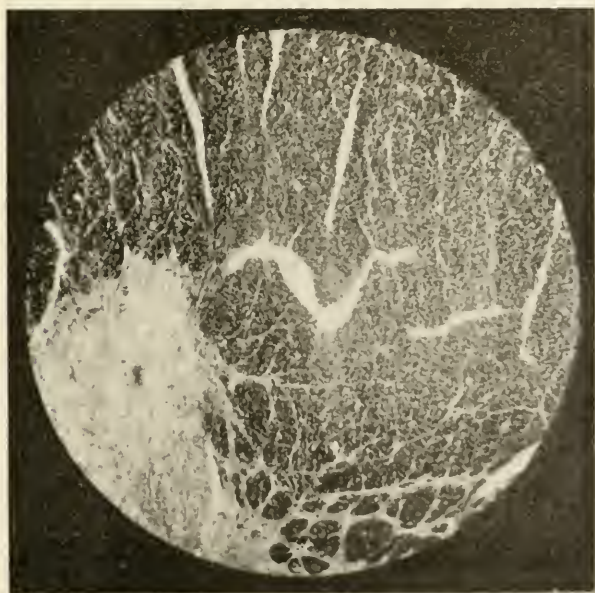


FIG. 2. Photograph showing the blood-vessel sclerosis, the associated perivascular connective tissue overgrowth, and the numerically increased and much thickened trabeculae of connective tissue and the numerous islets of sclerosis in connection therewith. Weigert-Pal preparation.

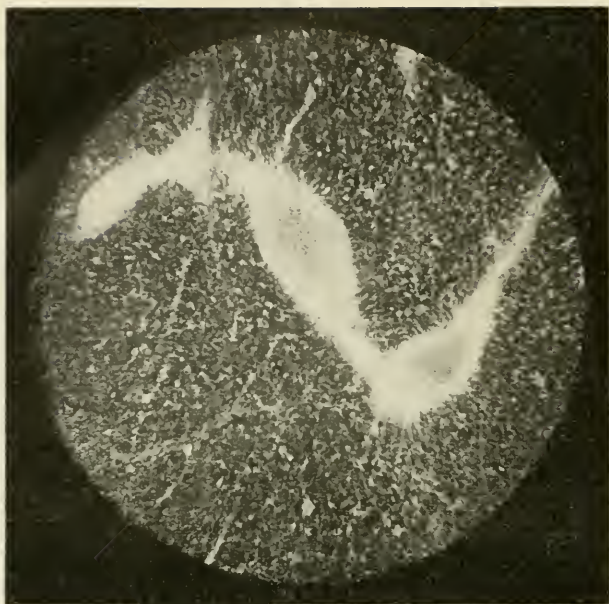


FIG.3. Higher magnification of Fig. 2.



FIG. 4. Photograph showing changes similar to those evident in Figs. 1, 2 and 3. Hematoxylin—Picric Acid—Fuchsin preparation.

When not otherwise stated, the nerve fibres of the various tracts appear normal.

Throughout the cord at all levels, but especially in the regions noted as revealing nerve fibre degeneration that is, in the posterior and lateral columns—there is a great increase of the connective tissue. This connective tissue overgrowth is intimately associated with changes in the blood vessels and pia-mater. With the exception of the very minutest ones, the blood-vessels are everywhere distended, and all have greatly thickened walls. This applies to vessels of all calibres, from minute spinal ones to larger pial vessels. The smallest spinal vessels have greatly thickened walls and the lumen of many of them has apparently become obliterated. Careful examination of the somewhat larger ones, reveal slight proliferation of the intima and great increase in the thickness of the media, which is poor in nuclei, concentrically laminated, and apparently somewhat hyaline in structure. Surrounding this latter is a layer of variable thickness of less homogeneously staining connective tissue. These changes are very marked in some of the median sized and larger vessels, which themselves are occasionally the seat of some round cell infiltration.

The pia-mater is very greatly thickened, contains a very few nuclei, and has become united with the arachnoid. The peripheral layer of the spinal neuroglia is also greatly thickened. From this greatly thickened pia and neuroglia, and from the blood-vessels with thickened walls as noted above, there extend throughout the cord numerous connective tissue trabeculae. These are very greatly in excess in number and much thicker than normally, and while present throughout the cord, are much more in evidence in the areas already referred to as revealing nerve fibre degeneration.

These trabeculae are frequently very thick, inclosing within their confines bundles of nerve fibres, whereas, again they are finer and surround only individual fibres, leading thus to degeneration of single fibres. The blood-vessel sclerosis is, of course, not confined to the vessels of the white matter of the cord, but implicates of necessity those supplying the gray matter, which latter is not, however, appreciably altered. The central canal is filled with proliferated epithelium.

The most evident and important pathological alteration discovered in these sections is, therefore, the excessive overgrowth of connective tissue; the nerve fibre

degeneration being very properly considered secondary thereto. The intimate association of this sclerosis with the blood-vessels is very patent. The blood-vessels themselves are the seat arteritis and endarteritis, and around them as foci proceed trabeculæ of connective tissue encircling in places numbers, in others, fewer nerve fibres. The neurogia along the periphery of the cord is also greatly thickened, and from it proceed also into the cord, trabeculæ of fibrous tissue, much increased in thickness and in number.

This sclerosis originating around the vessels and periphery of the cord, while marked in all regions of the cord, is, however, much more intense in the posterior and lateral columns, especially in the area of the pyramidal tracts, and is more marked in the thoracic region than elsewhere. In areas slightly affected, more particularly where the sclerosing tissue surrounds groups of nerve fibres, rather than individual ones, the fibres for the most part appear normal. In other regions, however, in which the sclerosing connective tissue envelops frequently individual fibres, these have suffered greatly therefrom and have become atrophied, axis cylinder and medullary sheath in many instances, having disappeared, in others being much narrower than normally. There remain, therefore, in consequence, many minute islets of fibrous tissue. In places where several larger vessels are in close opposition there are quite large spots of sclerosis.

There was discovered no embolic, thrombotic, hemorrhagic, or other process to account particularly for the acute manifestation of the severe symptoms. The case is simply an illustration of one of the many instances with which the neuropathology abounds in which definite lesion are for a long time devoid of any very manifest symptoms. These when they do come on, frequently make their appearance abruptly.

That the patient, however, was not entirely without symptoms prior to the acute attack of paraplegia, is evidenced by the weakness of his legs. And, in the light of the microscopical examination, and reasoning *a priori*, one may very safely assume that there were present other symptoms, unfortunately overlooked as is but too frequently the case in the gradual and progressive weakness which attends old age. One cannot, therefore, but regret imperfect history.

The designation "Senile Paraplegia," is admittedly

ill-chosen, but has been selected because of its conciseness, and because it is sufficiently expressive of the clinical condition. We do not, however, desire to be understood as suggesting that the changes described are essentially senile in nature. They are distinctly pathological, and while frequently an accompaniment of old age, they are to be considered apart from changes of a purely senile character. It will hardly be appropriate to here enter upon the discussion of this subject in detail. For the photographs I am much indebted to Dr. Schively.

THE SPINAL CORD LESIONS IN A CASE OF FRACTURE OF THORACIC AND LUMBAR VERTEBRÆ.

By ALOYSIUS O. J. KELLY, M.D.

THE clinical history of the case is as follows: W. T. A., male, aged 33 years, mason by occupation, was admitted to the Orthopædic Hospital under the charge of Dr. Wharton Sinkler, March 28, 1895. He had had gonorrhœa when he was 25 years of age, but syphilis was denied. December 30, 1891, a scaffold on which the patient was working, gave way, causing him to fall twenty feet to the ground. He struck on his heels, then on his back. A brick standing on end struck him in the lumbar region to the right of his spinal column, causing a bruise which persisted for some time. On attempting to arise he could not move his legs. He began to immediately experience a sensation as of "pins and needles" from his waist down. For four days after the accident his legs were painful and felt cold. He had complete loss of control of his bladder and rectum. His sexual function was abolished.

Examination on admission to the hospital: No eruption or œdema; deep bed sores over the sacrum, on each heel, and on the calf of the left leg. No movements in the legs, no rigidity. Loss of control of the bladder and rectum. Complete anæsthesia below the crests of the ilea; touch, pain and temperature sense all abolished. No girdle pain. No tenderness on pressure over the nerve trunks. Elbow jerks equal on both sides; muscle jerks in arms normal. Knee jerks absent, not re-inforcible. Tendon achilles jerks absent; plantar jerks absent; cremasteric jerks present but much retarded. Abdominal reflexes present. Urine contains a trace of albumin.

Electrical examination (Dr. Willets): No reaction to the faradic current in any of the muscles of the legs. Galv. ancl. > Kclc. 35 ma. required to secure reaction in tibialis anticus; calf muscles 30 ma. Galvanic qualita-

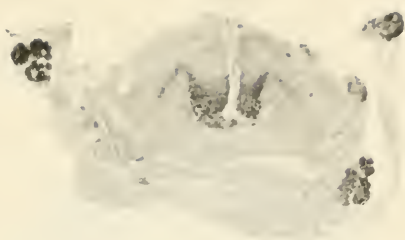


FIG. 1. One cm. above lesion. Photograph showing distortion of the cord, and complete degeneration of all the nerve fibres, except a few of those of the anterior column. Weigert-Pal preparation.

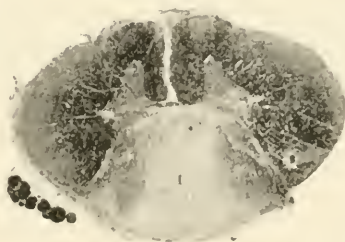


FIG. 2. Thoracic Cord, three cm. above lesion. Photograph showing degeneration of the nerve fibres of the posterior column and of those along the antero-lateral periphery (direct cerebellar and antero-lateral ascending tracts). Weigert-Pal preparation.

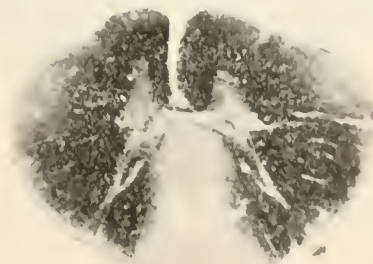


FIG. 3. Thoracic cord, nine cm. above lesion. Photograph showing degeneration of the postero-median, postero-external (partial), direct cerebellar and antero-lateral ascending tracts. Weigert-Pal preparation.



FIG. 4. Lower cervical cord, sixteen cm. above lesion. Photograph showing degeneration of the postero-median, direct cerebellar and antero-lateral ascending tracts. Weigert-Pal preparation.

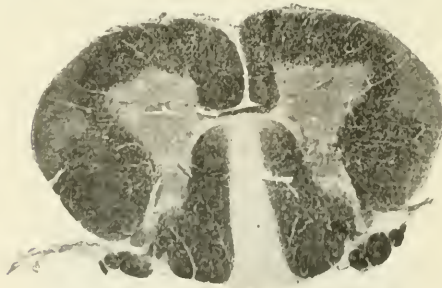


FIG. 5. Cervical enlargement, twenty-two cm. above lesion. Photograph showing degeneration of the postero-median, direct cerebellar and antero-lateral ascending tracts. Weigert-Pal preparation.

tive and quantitative change. Pupils equal and react well to accommodation and to light.

October 7, 1892, the patient died. The autopsy revealed a fracture dislocation of the first lumbar on the last dorsal vertebra; the dura mater adherent to the bodies of the vertebrae at the seat of fracture; the entire lumbar cord and the lower dorsal cord much flattened; chronic cystitis; slight dilatation of the ureters; pyelitis; abscesses in the kidneys.

For the specimen (the spinal cord) and the above notes, I am very much indebted to Dr. Charles W. Burr.

Microscopical examination (Weigert-Pal preparations): A section through the centre of the area of disease reveals total destruction of the cord, it being impossible to recognize any of its various constituents. What was the cord is now a mass of fibrous connective tissue, through which run a few partially degenerated nerve fibres. The nerve fibres of the cauda equina, particularly the most external ones, still retain their myeline sheath. Surrounding the structures of this region is a thick mass of dense fibrous tissue.

A section through the cord one centimetre above the former, shows great distortion of the cord, particularly of the postero-lateral regions, the component parts of which cannot be separately recognized. The cord is flattened from before backward, the posterior cornua being apparently displaced laterally, the posterior and lateral columns being crushed antero-posteriorly. The normal configuration of the anterior cornua and columns is well retained. There is complete degeneration of all the nerve fibres in this region of the cord, with the exception of a few along either side of the anterior median fissure, a few of the most centrally located of the anterior columns, a few skirting the medial and anterior border of the anterior cornua, and a few of the anterior commissure (Fig. 1).

A section through the cord 3 cm. above the first, shows the cord to be about normal configuration. Along the antero-lateral periphery there is a degeneration of the nerve fibres of varying extent, being greatest just a little external to the posterior cornua. With the exception of a few fibres bordering the tips of the posterior cornua, the fibres of the posterior columns are degenerated in their entirety (Fig. 2).

A section through the cord 9 cm. above the first reveals a complete degeneration of the fibres of the postero-

median (Goll's) column, and some degeneration of the medial peripheral fibres of the postero-external (Burdach's) column. There is some degeneration of the fibres along the periphery of the cord between the anterior and posterior cornua of both sides. This degeneration is most marked about midway between the cornua, at which place it penetrates some distance into the substance of the cord (Fig. 3).

A section (lower cervical) 16 cm. above the first, shows complete degeneration of the posterior median columns, which degeneration towards the posterior commissure spreads out fan-shaped. The postero-external columns are otherwise unaffected. The degeneration along the lateral periphery noted in the previous section is more marked, and about midway between the anterior and posterior cornua extends quite a considerable distance into the substance of the cord (Fig. 4).

A section (cervical enlargement) 22 cm. above the first reveals the same general characteristics as those evident in the last described section (Fig. 5).

Below the seat of manifest lesion—in the conus—it is absolutely impossible to recognize any spinal cord structure. There is present a mass of connective tissue through which run a few partially degenerated nerve fibres.

When not otherwise mentioned the tracts are normal.

There is, therefore, complete disorganization of the cord at the seat of fracture, and above this region throughout the cord, ascending degeneration of the postero median, direct cerebellar, and antero-lateral ascending (Gower's) tracts; and for a short distance, degeneration of the postero-external columns. In other words, we find the anticipated spinal cord lesions of a fracture in this region. To be mentioned only is the degeneration of the direct cerebellar tract in conjunction with a fracture of the vertebræ so low down.

For the photographs, I am very much indebted to Dr. Schively.

A CASE OF PRIMARY COMBINED COLUMN DISEASE.

By JOHN H. W. RHEIN, M.D.,

Instructor in Nervous Diseases, Philadelphia Polyclinic.

MRS. L., aged 59 years, presented herself for examination, complaining of unsteadiness in walking and numbness from the waist downward. Her family history reveals a decided neurotic taint. Her grandmother and three aunts had paralysis agitans, a sister nystagmus, and her mother an attack of apoplexy. She herself had enjoyed excellent health prior to the onset of the present affection, which began, she stated, suddenly, about two years previously.

There was an attack of unconsciousness preceded by stiffness in the neck and nausea. No paralysis followed, but shortly afterwards distinct insecurity in walking, with progressive weakness in both legs developed. She became emaciated and extremely pallid.

When examined by Dr. Frances Janney, eighteen months after the onset, she presented the following symptoms:

The patient was exceedingly anæmic, and moderately emaciated. There was no paralysis, though the legs were weak. The wasting was general and did not suggest atrophy from central trouble. The station was poor with feet together and eyes open or closed. The gait was distinctly ataxic. The knee jerks were decreased on both sides, but reinforcible. The plantar reflex was retained. There was no change in sensation except paræsthesia of the legs and trunk to the waist. A vaginal examination revealed the presence of a large tumor involving the fundus of the uterus. Its existence had hitherto not been suspected.

Some months later a second examination was made and the above condition confirmed. The knee jerks were irregular. On the right the response was slightly below normal, on the left almost normal, on both sides reinforce-

ible. There was no clonus or ankle jerk. The elbow jerk and chin jerk were present. Muscle reaction was good. Pain sense and sensation to touch and heat were normal. The paræsthesia was still present.

There was no disturbance of the bladder or rectal functions. A fine rythmical tremor in both hands was observed. This had existed for years and was not made worse by voluntary effort. An examination of the blood made by Dr. James E. Talley, showed 2,464,000 red blood cells and 40% hæmoglobin. Dr. A. G. Thomson reported the eye condition as follows: Pupillary reaction normal, form fields and fundi normal. Clear media, margins of discs hazy. The patient died a year later from exhaustion. Her exact nervous condition at the time was not studied.

The necropsy revealed the following facts: In the uterus, involving the whole body of this organ, was a large, hard tumor, which microscopic section proved to be a fibro-sarcoma. Some few masses, small in size and scattered, were seen in the liver, which was normal in size. The examination otherwise proved negative, except the spinal cord, which was the seat of a lesion presenting the greatest interest. Microscopically the cord appeared smaller than normal. There was no meningitis. The brain and its enveloping membranes showed no change. Unfortunately, the brain in the process of hardening, underwent decomposition, hence a report of the microscopical condition of this organ is impossible. Macroscopically there was demonstrated degeneration in the posterior and lateral columns of the spinal cord, as seen by the distinct paling of these tracts. The process involved the whole extent of the cord and was most intense in the lower dorsal region. The degeneration in the lateral tracts was not so extensive as in the posterior columns at any of the levels.

The cord was hardened in Müller's fluid, imbedded in celloidin, and stained by the Weigert-Pal method and with ammonio-carmin.

Microscopical.—After staining, a sclerotic change was seen in the posterior and lateral pyramidal tracts throughout the whole extent of the cord, almost systemic in character. In the posterior columns the degeneration is most intense in the dorsal region, least in the lumbar region, while in the cervical region it is considerably more than moderate. There is always a strip of healthy tissue surrounding the degenerated area in the posterior columns

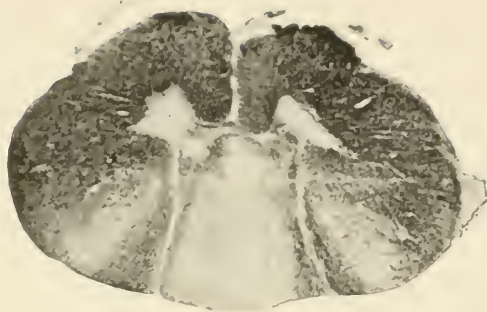


FIG. 1. Cervical cord showing degeneration of the postero-median, the postero-external (in part), and the crossed pyramidal tracts.

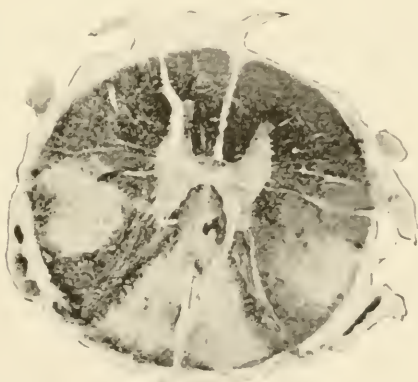


FIG. 2. Thoracic cord showing degeneration in the posterior and lateral columns.



FIG. 3. Lumbar cord showing degeneration in the posterior columns.

and the columns of Goll are more intensely involved than the columns of Burdach.

The ganglion cells in the anterior horns show slight change in places, chiefly in the upper dorsal region. The posterior roots and Clark's column show no signs of involvement.

In the upper cervical region, the degenerated area involves the columns of Goll in their entirety, except a few fibres medianward and cervically, which take the stain well. Though to a much less degree, the columns of Burdach are markedly involved. Centrally there remain a number of healthy fibres, while peripherally but a few well-stained fibres can be seen. The root zones are present. In the lateral pyramidal tracts there is beginning degeneration, but to a much less degree than is seen in the posterior tracts. The anterior pyramidal and cerebellar tracts are intact. The anterior horns and posterior roots as well as the remaining tracts of the cord are normal.

In the cervical development, the same condition exists save that the degeneration in the postero-external columns and in the lateral pyramidal tracts is more intense.

In the dorsal region the process has so far progressed that few healthy fibres remain in Goll's columns. In the columns of Burdach a narrow strip along the posterior horns alone is stained, the process growing more intense from above downwards. In the anterior pyramidal tracts a very moderate degree of degeneration is observed. There is marked degeneration of the crossed pyramidal tract. In the upper levels a few ganglion cells have lost their prolongation, but there seems to be no lessening in the number. The process involved to a very slight degree the antero-lateral ascending tracts.

In the lumbar region the degeneration is less marked, especially marginally. In the posterior columns healthy fibres in increasing numbers are observed. A band of well-stained tissue encircles completely the degenerated area.

In the lumbar enlargement, only traces of the process in the lateral columns are seen. In the posterior columns are two wedge-shaped areas of degeneration on either side of the posterior fissure, surrounded by healthy tissue.

The degeneration now rapidly becomes less in extent and degree, until in the sacral cord there is no trace of

the process visible. Clark's columns and the posterior roots are intact.

The carmine specimens show smaller axis-cylinders; in places many entirely disappeared; a marked increase in connective tissue. To a very moderate degree is there increase in the blood vessels. There were seen no granular cells in any of the sections.

This is evidently one of a group of cases which has been variously described as combined tabes, postero-lateral sclerosis, spastic tabes (Grasset), ataxo-paraplegic tabes (Dérjérine), ataxic paraplegia (Gowers), combined fascicular disease, progressive spastic ataxia (Dana), true combined system disease (Babinski and Charrin) and primary combined column disease (Rothman).

In 1871 Prevost described the post-mortem findings in what was probably the first case belonging to this group. Later, Babesin, Strümpell, Siall, Westphal and others added cases to the literature of the subject. In 1886 Grasset collected 33 cases with autopsies and called the disease combined tabes (ataxo-spasmodique). The evidence did not point to a mere systemic lesion. He believed with Gowers that while the lesion in the posterior columns was systemic, in the lateral columns it tended to be diffuse, and concluded that the process was a diffuse myelitis.

A study of the autopsies in the cases above demonstrates clearly that the disease is one with a most varied morbid anatomy, different columns in varying degrees of intensity being involved. The gray matter may or may not be diseased; the peripheral nerves have been found involved; Clark's columns and the posterior roots as shown by Rothman, Mayer and others are often affected. On the other hand, a number of cases show a noteworthy unanimity in the distribution of the lesion in the posterior columns. With moderate constancy the lesion is more intense in the lower dorsal region, less in the cervical region and least in the lumbar and sacral regions. As a rule there is a band of healthy fibres surrounding the diseased areas adjacent to the posterior horns. In the lateral columns the degeneration is not strictly systemic as Gowers, Dana and others have proven, and which is shown in the case under discussion.

In some cases the lateral mixed columns are encroached upon, and the direct cerebellar tracts are not infrequently involved. In Strümpell's case, reported in 1880, there was systemic degeneration of the pyramidal

tracts, posterior columns, cerebellar tracts with atrophy of Clark's columns. The anterior horns and peripheral nerves escaped.

This variability in the morbid anatomy, together with the irregularity in the clinical history, suggests that the lesion is not truly systemic, but rather diffuse, beginning as a primary disease of the column of the cord, the posterior and lateral pyramidal tracts most usually, and developing as the process progresses into a diffuse one. It is not a systemic lesion, as Strümpell, Hochhaus and others maintained. It may, if the patient succumbs early, show a limitation to certain tracts in the cord, but when the disease is of long duration the process takes on an increasingly diffuse character. Strümpell believed that the further extension of the disease by continuity is improbable. Certainly, at first the limitation to certain columns, and the freedom of the parts immediately adjoining the diseased areas, inclines to this view, but later there is little doubt that continuity plays at least some part in the extension of the lesion.

The presence in the case under discussion, of a malignant tumor of the uterus is interesting in connection with the recent reports of spinal degeneration in constitutions with morbid blood states. Lichtheim, Nonne, Minnick, Burr and others have described characteristic lesions of the cord in pernicious anæmia. Babes and Kalindero, in 1890, reported a case of Addison's disease, with lesions in the posterior and lateral columns with a distribution which suggests to no slight degree that found in many of these cases of combined sclerosis. Fleiner quotes Abegg's case of spinal degeneration in a case of Addison's disease. There was change in the posterior columns in two of his own cases.

Minnich mentions spinal change in three cases of chronic icterus, in one case of leukemia, in a case that died of tumor of the "vermis inf. cerebri," in two cases of chronic nephritis, and finally, a case of carcinomatous cachexia with hydraemia. Lastly, spinal lesion has been found in hypnotismus, pellagra, lathyrismus, and lead and alcohol poisoning. This clearly demonstrates some relation between toxic blood conditions and spinal degeneration, but just what that relation is, it is impossible in the present light of our knowledge to decide. In pernicious anæmia, the origin of the blood state remains as obscure as the cause of the spinal lesion. The theory that the two conditions are common results of the same

cause, probably a toxine seems the most plausible explanation, one is justified at present in making.

Since the exact duration of the tumor of the uterus is not known, we are inclined to place no importance upon its presence, and all the more likely to consider its presence a coincidence.

In studying the etiology of the affection it will be seen that nervous heredity plays an unimportant part; that syphilis is rarely an antecedent; that it is more frequent in males; that it is a disease of adult life; that exposure and excesses, exercise, predispose, and lastly, it follows spinal injury according to Rothman. The symptoms are characteristics. The onset is gradual, the first symptom being unsteadiness in walking. Soon there is added stiffness in the muscles, though this may be absent. Romberg's symptom is present and the gait is distinctly ataxic, though differing from the walk of true tabes. The high raising and flopping down of the feet is not prominent. It is a mingling of the gaits of spastic paralysis and true tabes—when spastic symptoms are present. Lightning pains are almost always absent owing probably to the freedom of the root zones. Other sensory symptoms are rare. The reflexes show a wide difference from the tabes. The knee jerks are usually much exaggerated or spastic at first, while towards the last they may be almost or quite absent. The plantar reflex is present, as well as the remainder of the superficial reflexes. The sexual power is early lost. The eye symptoms sometimes, but rather exceptionally, resemble those found in true tabes. The iris reflex to light is usually preserved and optic atrophy is the exception. Progressive weakness ushers in the final symptoms.

The disease has little tendency in itself to cause death according to Gowers and Dana, and usually is of long duration. Rothman's experience, however, leads him to conclude that the duration of the disease is but three years. In our own case the patient expired just three years after the appearance of the first symptoms, but the case was not uncomplicated, and had the malignant tumor been absent we are warranted in supposing that the patient would have survived a longer period.

In conclusion, thanks are due Dr. Frances Janney for her kindness in permitting this report and for the opportunity of making the necropsy. To the kindness of Dr. Schively are we indebted for the photographs.

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SPINAL CORD FROM A CASE OF POTTS' DISEASE.

BY HENRY D. BOYER, M.D.

THE following case was under the care of Dr. J. P. Willits in the Germantown Hospital in the spring of 1894.

Unfortunately he was an Italian who spoke no language other than his own, and his previous history could not be ascertained.

When brought to the hospital he was a middle-aged man, with the objective symptoms of a chronic myelitis. And no direct cause for the cord disease could be found. He had evidently been in bed for some time. There were much emaciation, complete paraplegia, and contractures of the thighs and the legs with fibrous ankylosis at the hips and the knees. The sensation was completely lost from the umbilicus down. The knee jerks could not be tested on account of the contractures. There was full control over the bladder and the bowel sphincters. The arms were in no way affected, except by the general weakness. The back was perfectly straight. There was no point of especial tenderness along the spine, nor any pain in any other part of the body. The temperature was at times hectic, but no focus of pus could be found.

This condition remained much the same for some five months, the symptoms of myelitis becoming gradually worse until death occurred. Towards the latter part of this time, the control of the bladder and the bowels was lost, and a bed sore developed on the sacrum and right heel.

The post-mortem was made by Dr. Burr, who gave me the following notes of it and the spinal cord.

At the time of the man's death, there remained the paralysis and the contractures of the leg as before noted. There was no angularity of the spinal column and no prominence looking like an abscess near the surface. On cutting down on the spine, there was opened a large pocket holding almost a pint of pus.

This was found under and to the inner side of the right scapula. The pus had burrowed into the posterior mediastinum, but not into the pleural cavity. The laminae of the dorsal vertebræ from the fifth down were carious. The bodies of the same vertebræ were markedly carious and filled with cheesy matter. The most marked destruction of bone was in the fifth, sixth and seventh dorsal vertebræ. The meninges of the cervical portion of the cord were normal. Those of the lumbar region were almost free of deposit. In the dorsal region, the dura was greatly thickened. At the point of most disease, from the fifth to the eighth dorsal vertebra, the cord was completely surrounded by a thickened dura, at some places one-half of an inch in thickness. The brain was normal. The lungs showed miliary tuberculosis with pleural adhesions.

The microscope shows the extreme dural thickness to be due to an inflammatory process in the dura itself, with new cell formation, and to a cellular and a cheesy deposit on the outer side of the dura.

The cord is greatly pressed upon by this new tissue. It is distorted and nearly destroyed at this site by both the mechanical and some inflammatory processes. Secondary degenerative lesions are found both above and below this point. At the place of greatest pressure, there is shown some inflammatory changes. Many new cells are present where only nervous tissue should exist.

There is no distinct line of demarcation between the gray and the white matter. Both being almost totally destroyed. The cells in the anterior horns of the gray matter are few in number. Some are destroyed. Others are not perfect, having lost some of their processes. The central canal is filled by new epithelial cells. The white matter is mostly degenerated in all portions of the cord at this level. Most of the axis cylinders and the myelin sheaths are totally destroyed. Other myelin sheaths are undergoing destruction, being swollen or narrowed, according to the degree of degeneration. Small particles of myelin, not in cylindrical form, are everywhere found through the section. There are a few of both myelin sheaths and axis cylinders that are normal. These are found near the centre of the section, and around the remains of the gray matter where least pressed upon.

The secondary degeneration both above and below the point of most pressure shows the same kind of

change as above described, but to a less extent. It follows fixed columns. In none of these is the degeneration so marked as at the transverse myelitis.

In the cervical enlargement, the posterior median tracts of Goll are almost totally destroyed. The columns of Burdock are a very little affected. There is another small degenerated area in the lateral ascending columns. This is close to the margin of the cord and in the extreme lateral part.

A section very high, near the medulla shows the degeneration in the posterior median columns. That in the ascending lateral tract is not so wide as in the cervical enlargement. The other lateral tracts are normal above the lesion.

Below in the lower dorsal region all the lateral columns are involved, except the lateral fundamental zone lying near the anterior gray matter. The direct pyramidal tracts are also marked by the degeneration.

In the lumbar region, the antero-lateral tracts all show more or less destruction, except immediately around the anterior gray matter. The degeneration is greatest near the surface.

Below the lesion the posterior columns are not affected.

I wish to thank Drs. Burr and Willits for the privilege of presenting this case.



FIG. 1. Drawing showing the gross lesions: a, right third nerve adherent to fibroid mass; b, right internal carotid plugged by a thrombus; c, fibroid mass filling the Sylvian fissure and extending backward to the crus; d, chiasm; e, left internal carotid containing recently organized thrombus; f, left third nerve; g, left posterior communicating at junction with postcerebral; h, basilar giving off postcerebral.

* This illustration is used through the courtesy of the publishers of the Medical News.



FIG. 2. Section of right oculo-motor nerve, showing complete degeneration and almost total disappearance of the nerve fibres. Low magnification.

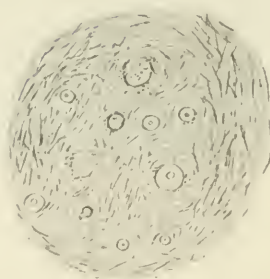


FIG. 3. High magnification of FIG. 2.

CEREBRAL SYPHILIS.¹

BY MARY ALICE SCHIVELY, M.D.

THE case under examination presented the following clinical history: L. S., single, aged 29 years; a seamstress by occupation. The family history was negative. She had a history of alcoholism and syphilis, with sore throat, skin eruption and loss of hair. In July, 1894, she began having persistent frontal headache; at the same time her eyesight began to fail. Upon awakening one morning early in September, she noticed for the first time that her right eye turned upward and outward. Upon attempting to rise she was unable to stand, and discovered that her left leg was useless. She afterwards regained some use of her leg, but continued to be subject to occasional attacks, during which it would suddenly give way.

The patient was admitted to the Nervous Wards of the Philadelphia Hospital in December, 1894.

At this time she had a stupid expression of countenance, and wandered about aimlessly, speaking but little. She constantly complained of headache which was relieved somewhat at intervals, by repeated doses of potassium iodide. She had periods of marked irritability, which were followed in turn by mental hebetude, after which she would remain in bed and during which she could not easily be aroused, and would not answer questions. Her gait was of a shuffling character; knee-jerk was plus and there was slight ankle-clonus of the left side.

Examination of the eyes was made by Dr. Oliver. The conditions were as follows: There was complete ptosis of the right eyelid; this eye itself was directed outward, and all movements of the globe were lost, except outward and a slight movement upward and outward; the pupil was immobile, four mm. in diameter.

¹ For a short report of this case, exclusive of the results of the microscopical examination, consult Mills: "Some Phases of Syphilis of the Brain," Case V., *Medical News*, December 7, 1895.

The left pupil responded to light. Both pupils were oval and both optic discs gray.

On February 28, 1895, the patient went to bed in a spastic condition similar to that of previous attacks, but more marked. The left side of the face was flushed and swollen and she spoke only in monosyllables. During the night she had a convulsive attack followed by general muscular twitchings. After this the oculo-motor paralysis became deepened and she would not answer questions, although she appeared to understand what was said to her.

During the next day the mental dullness deepened gradually into coma. On the following day there was stiffness of the right arm, but relaxation of the left arm and both legs; K. J. was exaggerated on the left side. The left eye remained open and fixed, the pupil being contracted. Later there was Cheyne-Stokes breathing. The patient remained in an apoplectic condition, dying on the evening of the second day.

The post-mortem examination revealed the following conditions: The dura was normal and not adherent; the pia free from inflammation, but much thickened; the meningeal vessels showed distinctly on the surface, the vessels over the hemisphere were distended. The right internal carotid was free until within two or three mm. of the penetration of the dura, and contained a flesh-colored, well organized thrombus. (Fig. 1). The right posterior communicating artery was a mere filament while the left was much enlarged. The right anterior cerebral was very small; the left anterior cerebral, very large. To the right side of the chiasm and the beginning of the optic nerve, there was found a dense yellow mass surrounding the internal carotid and adherent to the oculo-motor and optic nerves; this mass fairly obliterated the Sylvian fissure in which it was lying. The left internal carotid contained a recently organized thrombus in the region from which the posterior communicating and anterior and middle cerebral form; this thrombus extended into the middle cerebral artery for about one-half its length. The cerebellum, pons and medulla showed on section nothing abnormal. Upon section of the right hemisphere, the head of the caudate nucleus, the anterior extremity of the striate body and the lenticular nucleus were found to be softened. The material in this softened cavity was yellow and about the appearance of pus.



FIG. 4. Section of right optic nerve, showing new fibrous formation, round cell infiltration, and some degeneration of the nerve fibres.

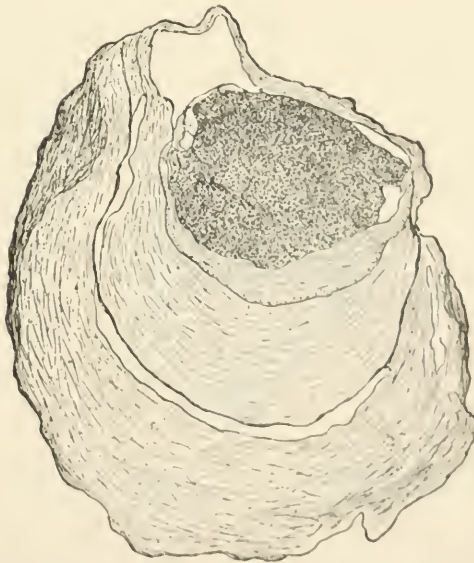


FIG. 5. Section of the left internal carotid artery, showing a recently organized thrombus, and arteritis proliferans nodosa.

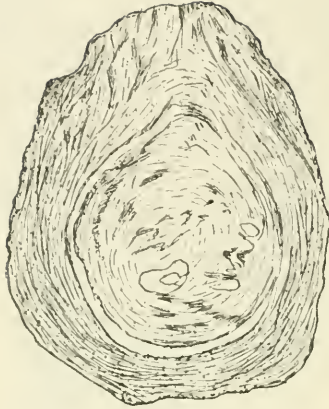


FIG. 6. Section of the right internal carotid artery, showing obliterating endarteritis, thrombus formation, and subsequent caseation of the entire structure.



FIG. 7. Section of the right posterior communicating artery.

Through the kindness of Dr. Mills, I obtained the above notes of the case from the Philadelphia Hospital Records, and also the specimen for microscopic study. The brain was hardened in Müller's fluid, and the sections were stained with hæmatoxylin and eosin; hæmatoxylin, picric acid and fuchsin; and according to the Weigert-Pal method. As a result of the microscopical examination, I offer the following facts illustrated in the accompanying drawings and photographs.

The oculo-motor nerve of the left side shows in section the presence of scattered regions of small, round-celled infiltration, and some tendency to fibrous formation. The small, round-celled infiltration follows the course particularly of the endoneurium, separating the nerve tracts into smaller bundles, and that of the blood vessels. The blood vessels themselves are dilated; their walls thickened and surrounded frequently by groups of these small cells.

In one portion of the margin of the nerve nearest to the median line of the brain, there is some evidence of degeneration of the nerve fibres. Elsewhere the structure proper of the nerve is normal; the axis cylinders being distinct.

The oculo-motor nerve of the right side shows complete degeneration and almost total disappearance of the nerve fibres. (Figs 2 and 3). Only the remnants of a few degenerated nerve fibres are seen, the nerve tissue being replaced by fibrous tissue which is, in turn, in various stages of caseation. The caseous remnants of a few minute blood-vessels can be detected. The position of the groups of partially degenerated nerve fibres is central and lateral. The epineurium is infiltrated with small, spheroidal, densely staining cells, and this formation is continuous with the gummatous mass which surrounds the nerve. This gummatous structure consists partly of fibrous tissue which is very dense, and is infiltrated with small cells (similar to those seen in the epineurium), while other portions consist of more or less homogeneous substance without nuclei or cellular infiltration.

The left optic nerve exhibits changes similar to those affecting the left oculo-motor. While there is present very little degeneration of the nerve fibres, the round-celled infiltration and fibrous formation are more evident than in the other nerve. The epineurium, perineurium and endoneurium, even to the finest divisions

of the latter are similarly affected. The round-celled infiltration follows also the minute arteries whose walls are thickened.

The right optic nerve (Fig. 4) shows a greater extent and a more advanced stage of changes similar to those observed in the left. Particularly on the side of the nerve nearest to the gummatous mass (which invades this region of the brain), there is an interstitial infiltration of small spheroidal cells. In places these have progressed to spindle shape and fibrous formation. In some regions, especially on the side above referred to, there is in addition marked degeneration of the nerve fibres. There are present also scattered areas of degeneration in neighboring regions, but none so distinctly marked as those above described.

The left internal carotid artery (Fig. 5) shows upon examination a recently organized thrombus, which fills up the whole lumen of the vessel. There are present evidences of arteritis proliferans nodosa, the adventitia, muscular coat and intima being much enlarged upon one side, while on the opposite side there is relative thinning of the walls which are, however, thicker than normal. The adventitia is extensively infiltrated by small spheroidal deeply staining cells, which are here and there collected into dense masses. In some places there is a tendency toward caseation; this being shown by an indistinct staining of the nuclei; but the general tendency is not in this direction. The elastic lamina is intact. Evidences of obliterating endarteritis are shown by the increased thickness of the intima due to increase in size and number of the endothelial cells in addition to the spheroidal cells.

In the right internal carotid artery (Fig. 6) are seen the conditions of obliterating endarteritis, thrombus formation and subsequent caseation of the entire structure. The vessel-walls and the tissues in their immediate neighborhood are caseous for a considerable distance. The distinction of vessel-walls into adventitia, media and intima cannot be recognized, and there is no elastic lamina visible. In the periphery of the adventitia there is an invasion of small, deeply staining spheroidal cells on that side of the artery, which is nearest to the surrounding gummatous mass. This gummatous growth filling up the Sylvian fissure extends about half-way around the artery, and consists peripherally of dense granulation tissue; of small round cells with more cen-



FIG. 8. Section of the left posterior communicating artery.

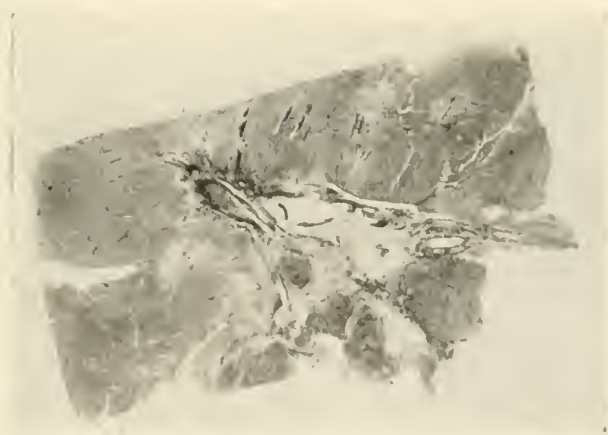


FIG. 9. Section through the right Sylvian fissure, showing gummatous formation and caseation, endarteritis and periarteritis, and involvement of the meninges and brain substance.



FIG. 10. Section through the right Sylvian fissure, showing changes similar to those in Fig. IX.

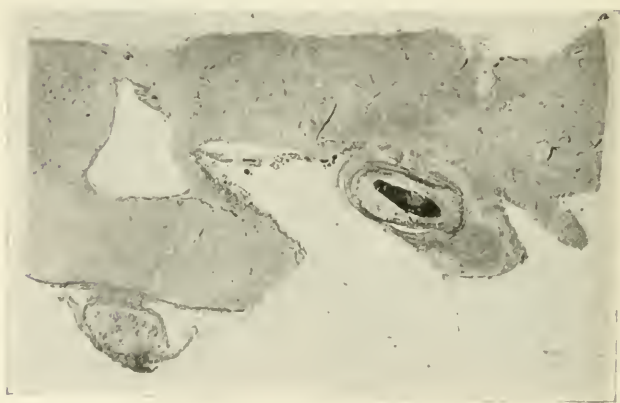


FIG. 11. Section through the left Sylvian fissure, left carotid artery, and optic chiasm, showing thrombus in left carotid artery and minor grades of other changes seen in FIGS. IX and X.

trally located fibrous tissue, infiltrated here and there with spindle and round cells; the centre being a great mass of caseated tissue. The small cells are arranged in definite areas in some portions, but for the most part irregularly scattered.

The right (Fig. 7) and left (Fig. 8) posterior communicating arteries exhibit earlier stages, and minor degrees of changes similar to those affecting the carotid arteries.

A section through the right Sylvian fissure and the *gemma* (Figs 9 and 10) of that region, scarcely permits of a distinction between brain cortex, meninges and vessels. Obliterating endarteritis and periarteritis have progressed in this region until the vessel and its thrombus form the centre of a caseous gummatous mass, around which are regions of fibrous and granulation tissue. There are numerous other foci of caseation of lesser extent alike surrounded by fibrous tissue, spindle and small round-celled infiltration. The portion formerly meninges, is now a layer of densely packed small round cells, and partly spindle-celled and fibrous or caseous. The infiltration extends a varying distance into the cerebral cortex in places, there being no area of limitation between cortex and meninges. The blood-vessels of the cortex are dilated, the walls thickened and surrounded by the same small, round-celled infiltration.

A section through the left internal carotid and the optic chiasm (Fig. 11) reveals changes similar to, although less marked than those present upon the opposite side. The chiasm exhibits the already described disease of the support structures and some disease of the nerve elements. The implication of the blood vessels is marked.

The pons *Varolii* shows evidences of gummatous formation, with caseation in the region of the pyramidal tract of the right side. The vessels of the pia mater in this region are enlarged and surrounded by spheroidal cells; the walls of these vessels are much thickened. There is some degeneration of the fibres of the pyramidal tract of the right side. In other respects the pons is normal.

In conclusion, the leading clinical features of the case may be summarized as follows: right oculo-motor paralysis; paresis of the left leg; mental symptoms (aphasia, irritability, stupor) and a long apoplecticiform period with convulsions preceding death. Pathologically, the case illustrates most beautifully the multiplicity and divers-

ity, both in nature and distribution, of the lesions of cerebral syphilis. The multiplicity of the lesions is evident in the various involvements of the blood-vessels, meninges, nerves and brain substance. The diversity in the nature of the lesions is manifest, when we review in detail the arteritis proliferans nodosa, or again the arteritis obliterans simplex leading in places to multiple thromboses and localized softenings; the interstitial neuritis with degeneration of the nerve fibres, or the absolute syphilitic destruction of the nerve; the meningeal implication progressing in places to simple round-cell infiltration or fibrous transformation and fusion with the brain substance, in others to caseation; and the involvement of the minute vessels of the brain, which tissue is itself in places slightly implicated, again extensively so, as evidenced by softening, or loss of normal limitations and involvement in large gummatous formations, as in the pons and Sylvian fissure. There is hardly a manifestation of syphilis, possible in the structures examined, that does not here find its exemplification.

AMERICAN NEUROLOGICAL ASSOCIATION.

Twenty-second Annual Meeting, held in the hall of the College of Physicians of Philadelphia, on June 3, 4, 5, 1896.

(Continued.)

TOXICOSIS OF THE NERVOUS SYSTEM AS A CAUSE OF PULMONARY CONSUMPTION.

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THE fundamental concept of this paper is, that impairment of the integrity of the nervous system, and especially of the pneumogastric nerves, leads to some form of pulmonary disorganization, and very frequently to that condition which is known as pulmonary consumption. This was observed long ago, for as far back as 1842, Cheneau (*De l'Influence de la huitième paire dans la production de la Phthisie*, Paris, 1842) attributed this disease directly to disordered pneumogastric innervation. In 1850, Dr. J. C. Holland defined pulmonary consumption as a disease of the nervous system. (Ansell's *Treatise on Tuberculosis*, p. 556). Dr. Copland (*Dictionary Practice of Medicine*, part XV, p. 750) regarded this disease as being dependent on an abnormal condition of the nervous system. Dr. Laycock says (*Medical Times and Gazette*, 1862, p. 205) that defective pneumogastric innervation consequent upon a loss of cerebro-spinal power, is a very common predisposing and exciting cause of phthisis. In the *Medical Times and Gazette* (1871, Vol. 11, p. 613) Dr. Clifford Allbutt, under the heading of "Phthisis as a Neurosis," in discussing the question of the relationship between phthisis and the nervous system, states that "the more I study this, the more I am satisfied that the lung mischief is also a neurosis by which I mean that the lesion is one not originating in the local tissues, but in the nervous system." More recently (1891), Dr. T. S. Clouston, in his interesting and

valuable lectures on the "Neuroses of Development," makes the statement that facts "seem to show that if tuberculosis (phthisis) cannot itself be called a neurosis, it is in most cases dependent for its existence on a trophic neurosis, or has the closest affinity to it."

In addition to the testimony which comes from these eminent sources, there is scattered through the literature of medicine, a richness of clinical cases which directly support the theory that phthisis and other pulmonary disorders follow injury and disease of the nerve supply of the lungs. I have collected and tabulated a large number of these cases in my brochure on "Pulmonary Consumption a Nervous Disease." The evidence which accrues from these instances is, by reason of its nature, more exact and weighty than if it had been worked out in the laboratory. Laboratory work only becomes really valuable when it is confirmed by the crucible of clinical experience, and by *post-mortem* results; but here nature herself performed the experiment, and with the most uniform products.

Now, in what follows, I hope to be able to demonstrate that there are a varied number of agents generated within the body and introduced into it from without, which intoxicate the nervous system with such severity, that they become a prolific source of pulmonary consumption. These poisons are alcohol, syphilis, mercury, lead, typhoid fever, diphtheria, measles, whooping cough, mumps, influenza, cerebro-spinal meningitis, beriberi and rheumatism.

ALCOHOL. Among the agents which are most potent in the production of pulmonary consumption, through the instrumentality of the nervous system, I would give the first place to alcohol. Dr. James Jackson, in this country, and Dr. Wilks, in England, were, I believe, the first to investigate its morbid effects on the nervous system, and called the same alcoholic paralysis, which is now known under the name of alcoholic neuritis. This disease is characterized in its early stages by numbness, tingling, hyperæsthesia in the extremities, and later on by anæsthesia, paralysis of motion, loss of knee-jerk, quickened pulse, shortness of breath, and frequently by pulmonary embarrassment. In females, the catamenia are almost always suppressed, and often for many months during the illness. Paralysis of respiration and of deglutition is common. Pneumonia, which occasionally terminates the case, is very likely due to lesions of the vagus. (Ross).

Drs. Oppenheim and Siemerling give the history of a male, aged 26. (*Archiv f. Psychiatric u. Nervenkrankeiten*, Bd. 18, S. 114), who was received on account of delirium tremens, and who had been addicted to alcoholic excess for years. About five months before his death, infiltration of both apices began, and he died of pulmonary phthisis. On microscopic investigation, the oblongata, the posterior columns, and all the nerves which were examined were found in a state of degeneration.

Thomsen (*Ibid.* Bd. 19, p. 191) cites the case of a chronic alcoholic, aged 48, who died from dyspnœa, distress in chest and in throat. Post mortem examination showed pulmonary atelectasy and broncho-pneumonia, hyperæmia of the oblongata, and a greyish color of the cranial nerves. The nucleus of the hypoglossus was excessively degenerated. The condition of the vagus could not be definitely ascertained.

Vierordt (*Ibid.* Bd. 18) relates the history of a chronic alcoholic, aged 30, who died from pulmonary phthisis. After death it was found that the oblongata, the cervical and the dorsal portion of the spine were much degenerated.

Schultze (*Neurolog. Centralblatt*, Bd. 6, 1887, p. 271) reports the case of a male, aged 39, who was a chronic alcoholic and also diabetic. His death was caused by paralysis of respiration. The oblongata and the nuclei of the vagus and hypoglossus were degenerated.

Strümpell (*Archiv. f. Psych. u. Nervenkranh.*, Bd. 14, S. 339) gives the case of a chronic alcoholic who finally developed and died of pulmonary phthisis. Death came through respiratory disturbance and general exhaustion. The spinal cord was normal, but all the peripheral nerves which were examined were found to be diseased. The author in commenting on this case says that the paralysis of respiration is of great clinical importance, and "whether tuberculosis has any relationship to neuritis, we do not know, but it is important to notice that in many of the recorded cases of multiple neuritis, tuberculosis co existed."

Ross (*Medical Chronicle*, May, 1890, p. 91) reports the case of a chronic alcoholic, aged 35, who during his last few months of life became phthisical. Dyspnœa was marked, and after death the vagi, phrenici and the anterior tibial nerves were found to be degenerated.

Déjerine (*Deutsche Med. Zeitung*, 1887, p. 711) con-

tributes the case of a chronic female alcoholic, aged 46, who had a pulse rate of 150 to 160, and who died of pneumonia. There was neuritis of the cutaneous and muscular nerves, and of both vagi.

Sharkey (*Trans. Lond. Path. Society*, 1888, p. 27) relates the history of a female, aged 32, who was addicted to the abuse of alcohol. Finally she became subject to hæmoptysis, great dyspnœa, and accelerated pulse and died from failure of respiration. After death both lungs were found phthisical, the dorsal and cervical regions of the cord, the vagi, phrenici and other nerves were diseased.

SYPHILIS. That pulmonary consumption is frequently generated through syphilitic infection is evidenced by the fact that most writers on chest diseases recognize a separate affection of the lungs as syphilitic phthisis. Like alcohol, this poison has an affinity for the nervous system, and therefore exerts its tertiary toxic action on this tissue. It may attack any nerve tissue, but it seems to affect the cranial more frequently than the peripheral nerves. Its intoxicating influence shows itself in pain, hyperæsthesia, anæsthesia, neuralgia, spasm, and paralysis in the course of nerve tracts, on the one hand, and in infiltration and degeneration of the same, on the other.

Naunyn (*Deutsches Arch. f. Klin. Med.*, Bd. 34, p. 433) cites the case of a female, 19 years old, who was always well until six months before her admission, when she acquired syphilis. Some time after her admission she became subject to a violent cough, dyspnœa and all the symptoms of phthisis, which was confirmed by a physical examination of her lungs. After death it was found that both lungs were degenerated as well as the oblongata and the cervical and dorsal portions of the spinal cord.

Penzoldt (*Centralblatt f. d. med. Wissenschaft*, 1874, p. 474) contributes the case of a female suffering from tertiary syphilis, which was followed by paraplegia and inspiratory dyspnœa. Pneumonia occurred, and tracheotomy was performed in order to relieve the impeded respiration, but the patient died, and it was then discovered that both vagi and accessorii were atrophied.

Buss (*Ibid.* p. 195) gives the history of a female, aged 29, who, after being infected with syphilis, became hemiplegic, and finally died from pulmonary phthisis. Section showed degeneration of the oblongata.

Echeverria (*Journal of Mental Science*, Vol. XXVI., p.

165) contributes the following case of a female, aged 26, who, after she had acquired syphilis, began to have epilepsy. After this the apices of her lungs became infiltrated, and post mortem examination showed degeneration of the oblongata. The fibres of the right pneumo gastric nerve were invaded.

Eisenlohr (*Centralblatt f. Nervenheilkunde*, 1887, Vol. X., p. 12) describes the case of a syphilitic male, aged 30, who died of pulmonary phthisis. On section it was found that nearly the whole spinal cord from the medulla to the sacral region was diseased.

Vierordt (*Archiv f. Psychiatric*, Bd. XIV., 1883, p. 678) contributes the history of a syphilitic female, aged 35, who began to suffer with pain and atrophy in the lower extremities. Respiration was accelerated, and there was only partial contraction of the diaphragm. Section developed that she suffered from phthisis, and that both vagi were diseased.

Köhler (*Prager Zeitschrift f. Heilkunde*, Bd. VIII., 1887, p. 1) gives the following: Male, aged 29, was suddenly attacked with partial hemiplegia. His thoracic organs were normal at the time. On inquiry it was found that three months previously he had acquired a syphilitic sore. Three months after his hemiplegic attack he began to complain of pain in his neck, spine and thorax, and in three months more he was dead of phthisis. The autopsy showed the existence of small cavities in both lungs, and sclerosis of the motor oculi and facial nerves; and the pons, the oblongata and the cranial nerves were in a state of degeneration.

Vierordt contributes the following case (*Neurolog. Centralblatt*, Bd. III., 1883, p. 180): Three years after a female, aged 23, had contracted syphilis, she began to complain of loss of motion and of impaired sensation in the lower extremities, and gradually developed all the symptoms and signs of multiple neuritis. In a short time paralysis of the diaphragm set in accompanied by a high pulse rate. Death followed. The lungs were phthisical; there was degeneration of all the peripheral nerves; the right vagus was atrophied.

MERCURY. It has long been known that mercury causes serious lesions of the nervous system, such as tremor, paralysis, etc., but I do not think that we are generally aware of the fact that the victims of mercurial intoxication are prone to fall victims to pulmonary consumption, and I am chiefly indebted for what I know of

this subject to the invaluable work of Dr. Adolph Kussmaul on the *Untersuchungen über den Constitutionellen Mercurialismus* (Würzburg, 1861), and from which I shall take the liberty of making the following quotations:

Walter Pope (*Philosophical Trans.*, Vol. I., p. 21, 1665) states that the laborers in the mercury mines of Friaul all become paralytic and hectic sooner or later, and that their sufferings frequently terminate in pulmonary consumption.

Scopoli (1786) noticed that the workers in the mercury mines of Idria become affected with profound weakness and tremor, cough, asthma, hemoptysis and phthisis.

Ramazzini (1700) says that laborers in mercury suffer from tearing pains, dizziness, stammering, convulsions, marked oppression and constriction of the chest, bronchitis, asthma, hemoptysis and phthisis.

The English war vessel "Triumph" anchored in the harbor of Cadix in 1810, and one month later a Spanish ship laden with a cargo of quicksilver was wrecked near by. About 130 tons was saved and brought on board of the "Triumph." By accident the metal was spilled, and distributed itself generally among the furniture and living apartments of the ship. Within three weeks 250 of the crew were salivated and suffered from tremor. The mercury was especially poisonous to those who were predisposed to disease of the lungs. Five of the men who were always well rapidly developed phthisis, and two of them died.

Burdin (1821) states that individuals who are exposed to the fumes of mercury become sufferers from debility, tremor, dizziness, anæmia. The intellect and memory wane, often an idiotic condition supervenes, and death from phthisis or apoplexy usually follow.

Dr. Bäumlér (1860) gives this interesting family history: Male, aged 69, always healthy before he became a gilder at the age of 39, at which he worked for twenty-five years, but was finally compelled to seek other work on account of serious mercurial intoxication. He was married three times, and all his wives followed the occupation of gilding. From the first union there were four children of whom one died of gangrene of both feet, and the other three and the mother died of pulmonary consumption. From the second union there were two children who with their mother died of pulmonary consumption. From the third union all the children who were born before the mother began gilding were

healthy, while one who was born after this period was a weakling, and died of cause not given, but the mother died of pulmonary consumption.

Dr. Kussmaul gives the following causes of death of 56 persons who were affected with mercurial intoxication: Pulmonary tuberculosis, 39; pneumonia, 3; pleurisy, 2; suffocative catarrh, 1; senile marasmus, 2; tubercular meningitis, 1; apoplexy, 5; varioloid, 2; scirrhus hepatis, 1.

These statistics show that mercurialism has a powerful tendency towards the production of pulmonary phthisis, and other diseases of the lungs. Of the 56 persons whose causes of death are here recorded, 71 per cent. died of pulmonary phthisis, and altogether 78.57 per cent. died of diseases of the lungs; while, with the exception of three, two of whom died of varioloid, and one of cancer, the others died of some nervous or wasting disease. Reckoning the general death rate from phthisis among adults at 18 per cent., this would give a mortality of the same disease among sufferers of mercury poisoning about four times greater.

LEAD. This is another metal which has the power of deteriorating the nervous system and of producing pulmonary phthisis. In fact it appears that metallic poisons, on account of being more slowly eliminated from the animal body, are more liable to exert a prolonged destructive action on the nervous system than vegetable poisons, and it is exceedingly interesting to observe that both mercury and lead are more slowly excreted than the other metals. This is a most plausible reason why these two poisons should be more intimately associated with chronic nervous and pulmonary diseases than the other members of their class.

The nervous affections which are produced by lead are well enough known, but I do not think that we are equally familiar with its power to generate pulmonary consumption. On this point, Naunyn states (*Ziemssen's Handbuch der Intoxicationen*, p. 203) that the complications which terminate lead disease are pulmonary phthisis, pneumonia, pleurisy and nephritis. In the *British Medical Journal* (August 19, 1893, p. 415), Dr. Robinson gives an interesting account of the liability of the lead miners of Weardale in England to pulmonary consumption. It appears that lead mining has been carried on in this region since the year 1401. In the Stanhope division of this region, twenty-three deaths occurred from 1885 to

1892 among the lead miners, five of which were ascribed to pulmonary consumption, seven to bronchitis, two to injuries, and one each to pneumonia, pleurisy, general tuberculosis, cystitis, chronic gastric catarrh, apoplexy and hæmoptysis—fifteen out of the whole number being therefore due to chest affections, or about 65 per cent. Among nine retired old lead miners who died in this same division during the eleven years previous, eight had diseases of the chest.

Besides the lead mining population in the Weardale region, the latter contains a larger number of inhabitants who are engaged in farming and in quarrying limestone—the condition of the houses, the character of the soil, and the climate being almost the same for the whole region. The mortality statistics which have been gathered by Dr. Robinson show that pulmonary consumption is from two to three times more prevalent among the lead workers than it is among the farmers or quarrymen living in this locality, or among the general population of England and Wales.

Moreover, lead is not only capable of greatly increasing the liability to pulmonary phthisis, but my experience leads me to say that it produces a form of this disease which is peculiar, inasmuch as the dyspnoea and other nervous symptoms are more clearly emphasized from the beginning, and which is less amenable to curative measures than the disease is generally.

TYPHOID FEVER is a disease which is characterized by certain inflammatory and ulcerative lesions of the solitary and agminated glands of the intestinal canal. It is the product of a specific poison, which, besides its deteriorating influence on the lymphatic glands of the small intestine, has an intoxicating action on the nervous system. Ross says (*Diseases of the Nervous System*, p. 975) that numerous nervous disturbances, such as insanity, aphasia, temporary hemiplegia, hyperæsthesia, involving a considerable portion of the limbs and trunk, neuralgic pains in the muscles of the limbs, neck, thorax and abdomen, paralysis and degeneration of the tibial and peroneal nerves, paralysis of the abductors of the glottis, and of the external rectus muscle, paraplegia, acute ascending paralysis, progressive muscular atrophy, ataxia, and other chronic affections may be established during an attack of, or convalescence of typhoid fever. This indicates, therefore, that the central, as well as the peripheral nervous system may become deeply im-

plicated in this disease, which is further confirmed by the researches of Dr. A. Lewin (*Beiträge zur Pathologie der n. Vagus*, 1888), which show that in twenty six cases of typhoid fever which he examined, degeneration of the vagus existed in every instance.

Louis made the observation that inflammation of the lungs is more frequent in typhoid fever than in any other acute disease, and that young persons who make an imperfect convalescence from this fever, frequently fall into an acutely course of pulmonary consumption. Murchison says that an attack of typhoid fever is often followed by destructive disease in the lungs. Dr. John Harley states (*Reynold's System of Medicine*, Vol. I., p. 378) that "in upwards of thirty cases (typhoid fever) examined by myself, I have found the lungs free from the effects of more or less extensive inflammation only twice."

DIPHThERIA. Of all the acute exanthematous diseases diphtheria seems to be the one which is most frequently followed by sequelæ of the nervous system. These manifest themselves primarily in loss of motion and sensation in the pharynx and larynx, in impairment of taste and in defective vision due to lameness of the ocular muscles. In some cases there is complete loss of power in the legs, which seem to be more prone to become implicated than the arms. Paralysis of the bladder, delirium and convulsions have occurred. The heart and lungs become seriously embarrassed through the action of the diphtheritic poison on the circulatory and pulmonary nerve supply. Retardation of the pulse and paralysis of respiration seem to be the result, as Ross says (op. cit. p. 977), of a primary irritation followed by paralysis of the vagus. Squires states (*Reynold's System*, vol. I., p. 125) that loss of power and of sensibility in the parts supplied by the par vagum occur at a somewhat earlier period in this disease than the paralytic affections of other parts of the body. Dr. Gull reports the case of a boy, aged 11, who, five weeks from the commencement of diphtheria, was unable to prevent the head from falling forward, or to either side, owing to paralysis of the muscles of the neck. He suffered from dysphagia, aphonia and paroxysmal dyspnoea, and in a few days the breathing became entirely thoracic—the diaphragm being unmoved in inspiration or expiration, indicating a loss of power in the phrenic nerves. Death came rapidly through apnoea.

Mendel (*Centralblatt für Nervenheilkunde*, Bd. VIII., 1885, p. 102) relates the case of a boy, aged 8, who was taken ill with diphtheria, and this was followed by paralysis of the muscles of the throat, eye and face, and by hyperæsthesia and coldness of the lower extremities. The pulse was 100, and the temperature 38.5° . Physical signs of bronchitis developed, and albumin was found in the urine. Death was caused by embarrassed respiration. On section hyperæmia and extravasation were found along the vagus and abducens, and their fibres were in a state of degeneration.

Shech reports the following case (*Archiv f. Klin. Med.*, XXIII., p. 2): A child, 7 years old, one month after having passed through an attack of diphtheria began to suffer from dysphagia and hoarseness, and expelled all forms of nourishment in violent fits of coughing. Complete loss of motion and of sensation in the larynx. Death came through pneumonia. Both inferior laryngeal and vagi nerves had undergone fatty degeneration.

MEASLES is another acute eruptive disease which is extremely prone to give rise to disorder of the pulmonary organs. According to Copland there is a special tendency to consumption in those who suffer from its attack after having passed the period of puberty. Ringer asserts (*Reynold's System*, Vol. I., p. 198) that "acute tuberculosis or chronic phthisis may occur during the course of the disease, but it usually first gives evidence of its existence after the fever has declined. Acute tuberculosis follows measles more frequently than any other of the acute specific diseases, whooping cough being, perhaps, excepted." Some attribute the lung changes to an extension of the inflammatory condition along the bronchial tract to the pulmonary tissue, while others, among whom is Ruehle, incline to the belief that they are due to infiltration and caseation of the bronchial glands which are involved in the process. The two following cases appear to show that compression of the vagi by enlarged bronchial glands incidental to measles may be the cause of pulmonary phthisis.

Baseir cites (*Jahrbücher für Kinderheilkunde*, 1878, S. 414) the case of a female child who had measles in the spring of 1876. In the following fall she was found to have infiltration of the right apex and mucous rales over the remainder of her chest. After death a cavity was found in her right lung, and the right vagus was compressed by enlarged lymphatic glands. Barlow (*Lond.*

Path. Soc. Trans., Vol. xxx., p. 254) contributes the case of a seven months' old child who suffered from lung disease since he had measles. Section showed cavity in right lung, and compression of right vagus by an enlarged bronchial gland.

WHOOPIING COUGH. Most authorities are agreed that whooping cough is essentially a nervous affection; that its virus has a specific toxic influence on the respiratory nerves, and that of all the acute contagious diseases, it is the one which is most liable to be attended and followed by disorders of the lungs. Dr. Copland writes, "I believe that the disease is chiefly nervous in simple cases; that it preserves this character, more or less, throughout, even when inflammatory complications ensue; and that in the uncomplicated state, the nervous affection never proceeds beyond irritation. . . . The inflammatory appearance in the medulla oblongata and base of the brain may be owing to the functional relation of these parts to the respiratory order of nerves which receive the first impression of disease." Hufeland, Hoffman, Wendt, Walshe and Puldame ascribe the principal seat of whooping cough to irritation of the pneumogastric nerves, and Guibert to that of the general nervous system.

The pulmonary pathology of whooping cough is, therefore, of great interest, inasmuch as it shows the manner in, and the extent to which pulmonary changes may follow in the wake of an influence which operates solely through the nerve supply of the lungs. Here, if anywhere, should be found the strongest evidence in favor of the neurotic theory of the origin of pulmonary disease.

The evidence goes to show that in all severe cases of this disease, there is congestion of the pharyngeal, laryngeal and bronchial mucous membrane, and of the lungs together with dyspnœa, and feebleness of the respiratory sounds. There may also be a shade of dulness in some parts of the lungs. The heart's action is weak, the pulse is rapid, and emaciation and exhaustion are constant symptoms. Epistaxis and hæmoptysis occur generally. Emphysema, broncho pneumonia and phthisis are frequent complications, especially in the offspring of those who bear a history of chest disease.

MUMPS, as a rule, is a mild specific contagious disease, but when complicated, I am convinced that in some way it is a forerunner of pulmonary consumption. One

example of this especially impressed itself on my mind. It was that of a boy, sixteen years old, who, while suffering from this disease experienced a severe pain in his left chest and in his left testicle. The latter organ did not swell, but its pain and that in the chest was almost wholly relieved by hæmoptysis. From that time on, he began to cough and to show evidence of physical degeneration of the left lung, and died of phthisis before he was quite twenty years old. There is a marked phthisical heredity in the family.

Bartholow says (*Practice of Medicine*, p. 773) that "during the late war, the cases of mumps were accompanied by high fever, often delirium, and by great depression of the vital powers: pneumonia was a not infrequent complication, and those who recovered had a tedious convalescence, the blood being much impoverished and the body emaciated. . . . In some persons, the subjects of a dyscrasia, the morbid condition is awakened from its dormant state by an attack of mumps. The tubercular diathesis is the most common of these."

INFLUENZA. Whatever the precise etiology of influenza may be, it must be recognized that all the varied outward manifestations of the disease, are but an expression of the disturbance which exists in the nervous system below. The organs which are most commonly involved in this manner are the lungs, the heart, and the intestinal canal; and the synonyms, *peripneumonia notha*, *peripneumonia catarrhalis*, *pleuritis humida*, *catarrh pulmonaire*, *defluxio catarrhalis*, etc., which have been used by the older writers, while failing to recognize its specific nature, are clear descriptions of the external phases of this disease.

Among the early symptoms of influenza, are severe and often excruciating headache, drowsiness, delirium, vertigo, bluntness of the senses, cold feeling along the spine, rigors, fever, sometimes profuse sweating, pain in the neck, shoulders, arms, back and legs; great lassitude and extreme prostration. Then comes a paroxysmal cough, which is sometimes dry, but frequently attended by stringy, tenacious and bloody expectoration, hoarseness, dyspnœa and threatened suffocation. The pulse may be strong at first, but soon becomes soft and feeble, and may be very slow.

The morbid anatomy of influenza is principally seen in the meninges of the brain, spinal cord, peripheral

nerves, lungs and heart. The brain and spinal cord are congested, and are dotted with hemorrhagic spots, and degenerative changes occur in the axis-cylinders and nerve fibres. Pulmonary œdema, broncho-pneumonia capillary bronchitis and pleurisy are its frequent accompaniments. Frequently, collapse of a lung, or of part of a lung supervenes.

The pulmonary disease in influenza was believed by Graves to be due to paralysis of the vagi. Walshe says (*Diseases of the Lungs*, p. 563) that "this poison seems specially to exercise its influence on parts supplied by the pneumogastric nerve; and it is worthy of remark that whooping cough, an affection in which that trunk is indubitably concerned, has often been noticed to prevail concurrently with influenza."

URICACIDÆMIA. Notwithstanding the opinion which prevails in some quarters that rheumatism and gout are antagonists of pulmonary consumption, I believe that uric acid is in some way closely connected with, and is probably responsible for the existence of the latter disease in many instances. I do not refer here to those cases of phthisis which are more or less dependent on a valvular lesion of the heart originally caused by rheumatism, but to those in which there is an active and painful manifestation of the rheumatic poison in the joints, more or less severe, throughout the course of the disease. The affinity between asthma and bronchitis on the one hand, and gout and rheumatism on the other, is well recognized by noted authors who have written on the gouty and rheumatic aspects of these diseases, and it is quite probable that the relationship between pulmonary consumption and gout and rheumatism is equally well assured. Indeed, there is strong evidence for believing that the close alliance which exists between the above-named diseases, is brought about through the toxic action of uric acid on the nervous system. For according to Dr. Alexander Haig, of London, whose studies* on uric acid as a cause of disease have opened a wide and fertile field for practical medicine, a number of nervous diseases like migraine, epilepsy, hysteria, convulsions, etc., are frequently produced by uric acid poisoning. In this work he contributes many facts which go to prove the pernicious influence of this agent on the nervous system, and especially on the vaso-motor

* Uric Acid in Causation of Disease. By Alexander Haig. London. Churchill. 1896.

nerves, and in view of such an action, it is not very hard to conceive that uric acid may play an important part in the causation of pulmonary consumption. One thing is sure, and that is that hæmoptysis is very frequently a beginning sign of pulmonary phthisis, and that there are cases of phthisis with hæmoptysis which are associated at the same time with rheumatic swelling and pain in some, or perhaps all of the joints in the body, which are promptly and effectively relieved, both in so far as the bloodspitting and the articular pain are concerned, by the salicylates. The question arises here as to whether the uric acid which is responsible for the rheumatic outbreak is also accountable for the hæmoptysis. I believe that it is, and I furthermore believe that this toxic agent induces hæmorrhage from the lungs by disintegrating the vaso-motor nerves, and thus weakens the walls of the pulmonary capillaries; and that in accordance with Dr. Haig's view, the salicylates clear the blood of this poison and lower the tension in these vessels. Both, mercury and the iodides have a similar effect, but are inferior to the salicylates. This is confirmed by Mr. J. E. Frazer, now resident of the Royal National Hospital for Consumption in Ventnor, who states* that he has often seen the iodide of mercury used with benefit in hæmoptysis due to uricacidæmia, but found that the hæmoptysis returned, if this treatment is left off and is not followed by the salicylates.

Aside of its toxic effect on the vaso-motor nerves, the researches of Dr. Haig clearly make out that uric acid has a pernicious influence on the central nervous system, and according to the theory here advocated, it paves the way for the oncoming of pulmonary consumption. Whether this is true or not, experience has taught me the importance of bearing in mind the salicylates, even in small doses, when prescribing for cases of phthisis.

RÉSUMÉ, AND DEDUCTIONS. Owing to their manner of action, the poisons, which form the basis of this paper, may be separated into two groups. First, those which bring about a slow intoxication of the nervous system, and which induce a crop of chronic pulmonary diseases; and second, those which act more or less acutely and which produce a crop of acute diseases of the lungs, and which subsequently merge into well settled phthisis. The former group includes alcohol, syphilis, mercury,

* Haig. *Op. cit.*, p. 179.

lead and uric acid, while the latter comprises typhoid fever, diphtheria, measles, whooping cough, mumps and influenza. To these poisons might also be added those which engender beriberi, pellagra and cerebro-spinal meningitis.

While the ultimate trend of all these poisons is to undermine the nervous system, and to bring on pulmonary disorder, it must be understood that the chronicity or the acuteness of the latter process depends in a large measure on the virulency of the poison, on the amount and frequency with which it is introduced, on the persistency of its action, and on the facility or difficulty with which it is excreted by the body. In these particulars they vary greatly. Alcohol is eliminated rapidly through the lungs and the kidneys, and would not be attended by such serious danger to the economy, were it not for the fact that the chronic "tippler" takes it frequently and for a protracted period. In the case of syphilis, a single infection is capable of saturating the whole body for a long time. Mercury and lead enter the body gradually, either by being inhaled or ingested, and are eliminated exceedingly slowly. A comparatively small quantity of these poisons suffices therefore, to work grave and irreparable injury to the nervous system. Of all the poisons in the first group, uric acid is probably the most harmless, and being a normal constituent of the body, it only becomes dangerous when present in excessive quantity and for a protracted period. The members of the second group also differ somewhat in the rapidity with which they generate pulmonary disintegration. The poisons of whooping cough and influenza having a special affinity for the pulmonary nerves, bring about this result more rapidly and in a larger number of instances, than is the case with those of typhoid fever, diphtheria, measles and mumps, whose action on the nervous system is probably more general.

DISCUSSION.

Dr. WILDER, in discussing this paper, said: I congratulate the Association on this paper, especially in respect to the effect of alcohol upon the nervous system. In our public schools there are sometimes taught things that do not agree with the experience of mankind. It is of the highest importance that certain over-zealous reformers and ill-informed legislators should realize that the effects of alcohol upon the body are still under investigation by scientific experts.

Periscope.

Under the Direction of the Following Collaborators :

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S. E. JELLIFFE, M.D., New York.	W. B. PRITCHARD, M.D., New York.
WM. KRAUSS, M.D., Buffalo, N. Y.	H. PATRICK, M.D., Chicago, Ill.
I. LOWENKOPF, M.D., New York.	T. S. CHRISTENSON, Chicago, Ill.
R. K. MACALESTER, M.D., New York.	S. SHIVELY, M.D., New York.
P. MEIROWITZ, M.D., New York.	A. STERNE, M.D., Indianapolis, Ind.

ANATOMICAL.

*Ein Beitrag zur
Lehre vom Bau der
Ganglienzellen.*

Dr. H. Rosin, Assistantarzt, III. Med. Clinic. Berlin. (*Deutsche Med. Wochenschrift*, July 30, 1896, p. 495). In a concise and interesting paper, Rosin speaks of certain peculiarities of the ganglionic cells of the cord and brain. Ordinarily, the nuclei of all cells—other than ganglionic—are basophile, and the protoplasm, acidophile, *i. e.*, the former possess marked affinity for basic reagents, whereas the latter takes up only acid stains. Rosin found the reverse true of ganglionic cells; the nuclei are acidophile, or at least not basophile. A second characteristic of ganglionic cells of the cord, of the spinal ganglia, and of the cerebral cortex, he found to exist in their reaction with osmic acid. Whenever this reagent was used, there appeared collections of dark-brown granula in the body of the cell. In order to arrive at a definite conclusion as to the nature of these granule clumps, Rosin examined a series of cases, both normal and pathological, from old and middle-aged and youthful subjects. At the same time he controlled his researches by examinations of ganglionic cells of small and large animals.

It was found first that the same result was always obtained when osmic acid was used, and that these granula form a normal constituent of the ganglionic cells of the central nervous system, save those in the cerebellum, including the cells of Purkinje.

Artefacts he carefully sought to exclude.

Having established the presence of the granula as normally

existing in the cell substance, Rosin determined their nature in the following manner.

Pieces of nerve tissue from the cord and brain were hardened in formal and then bleached in chlorine water. Some of these pieces were without further manipulation, imbedded and examined, whereas others were treated with osmic acid. It was found that the pigment normally present in the cells, had been entirely removed by the bleaching process, yet the dark-brown granula were shown in those specimens treated with osmic acid. Therefore, these granula bore no relationship to the normal cell-pigment, inasmuch as this had been previously removed.

Rosin then succeeded in extracting the fat from the cells, by means of alcohol and ether. Afterwards using very dilute osmic acid solutions of one-third to one-half per cent., he found that no dark-brown granula were shown in the sections. He concludes, therefore, that these granula are fatty by nature, as dilute osmic acid is a well-known reagent to detect the presence of fat. By the use of acetic acid, he proved that the granula were not albuminous.

Summing up, Rosin finds that the normal ganglionic cells of adults are filled with a granular substance, which is of a fatty nature, often pigmented light yellow. The pigmentation becomes more intense with advancing years, and is to a certain extent, independent of the fat tissue itself. This condition—"lipochromic"—manifested in nearly all ganglionic cells, is almost entirely absent in Purkinje's, and in the smallest cells is altogether absent. Infants show only traces of this condition, and in small animals it is lacking. This lipochromic process is also present in the adventitia of the blood vessels of the central nervous system, arteries, veins and capillaries, where it can be detected by the same methods. It is to be regretted that the microscopic specimens which served to illustrate Rosin's work, were not reproduced in the article reviewed. STERNE.

CLINICAL.

Two Cases of Tetanus following the repeated Injections of Morphia.

By D. J. Leech, M.D. (*The Med. Chronicle*, Manchester, May, 1896). The first case was that of a medical man, 35 years of age, who died three days after the onset of the tetanic paroxysms. He had contracted the habit of injecting himself frequently with large quantities of morphia. There was reason to believe he had paid but little attention either to the cleanliness of the syringe, or to the clearness of the solution he used.

The second case was that of a man, who for several years had taken morphia for the relief of great abdominal pain and

sickness. He developed violent tetanic paroxysms from which he died in a few hours. His body was covered with marks due to the hypodermic injections of morphia.

Similar cases are reported in the *British Medical Journal* for November, 1879, and for July, 1892, and in the *Lancet* for 1867, Vol. II., p. 26. MEIROWITZ.

The Doctrine of the Neurons and the Discharge Theory.

By Prof. Bechterew. (*Neurol. Centralbl.*, 1896. Nos. 2 and 3). The transmission of the nerve impulses from one nerve element to the other, has been explained by Golgi, in assuming the existence of anastomoses between the ramifications of various neurons. In opposition to this anastomosis theory, Forel, His, Ramon y Cajal and others put up the contact theory, explaining this transmission by contiguity of the end ramifications of one element with those of the other. The newest theory is the discharge-theory of Bechterew:

"The end ramifications of the one nerve element do not come in direct contact with those of the other, but come only near each other at varying distance. The transmission of the nerve impulse from one element to the other, takes place by a difference in the tension of the energy between these two elements, which causes a discharge from one neuron to the other. This discharge may be compared to that taking place in a series of Leyden jars, which are discharged one after the other, and one into the other. The greater or lesser proximity of the nerve endings of one neuron to the processes or the body of the other, will evidently cause a greater or lesser resistance to the transmission of the nerve stimulation from the one neuron to the other. The resistance to the conduction will further depend upon the number of the nerve elements required to compose the corresponding conducting paths."

The nerve elements are everywhere equal in their essential properties. We must ask, therefore, by what we should explain the qualitative difference of the sensations to be received by us (tactile, temperature, pain sensations, and those of taste, smell, hearing and seeing). B. comes to the conclusion that this qualitative difference of our sensations is not to be explained by the unessential varieties in the structure of our centres, but that it is in direct relation with the difference in the character of the nerve-stimulations at the periphery (skin, retina, labyrinth, etc.), and with the so caused peculiarities of the nerve-current.

The arguments which the author produces in support of his theory, must be read in the original. ONUF.

Book Reviews.

MANUALE DI SEMEJOTICA DELLE MALATTIE MENTALI.
By Prof. E. Morselli. Vol. II. Esame psicologico
degli alienati. Milano, 1894. Dr. Francesco Val-
lardi, Publisher.

This excellent book is destined as a guide for the diagnosis of insanity. The second part, that is the volume before us, has for its subject, the psychological examination of the insane.

We admire in this book the brilliancy of ideas, the clear representation of facts, the logic of interpretation and deduction, the exactness of elaboration of all data. The arrangement of the text seemed an especially difficult task of which the author has acquitted himself very successfully. We cannot otherwise than wish that the book will be translated into the English language, and thus gain success in a larger circle of readers in this country. One objection that might be made is that the author goes a little too much into details and introduces too many new terms which, to one not very familiar with the subject makes its comprehension somewhat difficult. The detailed description—the volume contains 850 pages—is on the other hand an advantage if one desires exact information on special points. Besides, those paragraphs which serve to give more detailed explanations and illustrations of important data, are rendered in small print.

The first part of the book begins with an introduction to the psychological examination of the insane. It discusses the methods to be pursued in order to get the fullest knowledge obtainable of the patient's mental condition. The information which we can gather by inspection, by interrogation, are here considered. The importance of material proofs, such as can be gained from writings of the patient, etc., is pointed out. The great services which experimental psychological examination (after the methods of Krapelin, Fecher, etc.) may render are called attention to. Then the anamnestic data obtainable from relatives, etc., of the patient are considered. Finally the value of each individual method is discussed. The author demonstrates very clearly with what tact and diplomacy the personal interrogatory of the patient has to be made in order to be successful.

The third chapter treats on the synthetic semiotics. First the "expressions" of the psychical states are discussed. The term "Expression" is conceived in a much larger sense than we commonly understand it. The author considers here: a. The general attitude of the body and the special positions and motions of the limbs; b. Standing and gait; c. Attitude and motility of the physiognomy; d. Phonation and articulate speech; e. Relations of action and reaction of the individual to his surroundings; f. In a secondary manner, the mechanism of respiration and circulation. The "expression" in the sense mentioned, is discussed in its relation to anatomy and morphology; its physiology, psychology and anthropology are minutely described. After this general introduc-

tion the author passes over to the description of the external aspect of the insane, of his language and of his behaviour.

The language of the insane is very exhaustively treated and justly so; the author devotes 180 pages to this special subject. First the elementary forms, mimic language (incl. gesticulation) and phonation come under discussion, then the articulate language is considered. In speaking of the ontogenetic development of articulate language, Morselli demonstrates very clearly the manner in which the child learns to think and to speak. As this description is rather illustrative of the author's point of view on the subject it shall be reproduced here:

"We see that in the child the faculty of thinking, that which we call intelligence, develops *pari passu* with the faculty of speech. The words heard by it and gradually understood, are retained in the mnemonic centres of the auditory images, then imitated by means of the vocal sounds. By practice those articulations which the child by means of its phonetic attempts has found out to be useful for its relations with the surroundings, are transformed into habits, and they become organized within the mnemonic centres of the motor images into more and more easy systems of articulatory motions. Later the reading, at least in the cultivated classes, makes it learn other external symbols for the abbreviation of ideas; a new element, the impression of the words represented in alphabetic signs, becomes fixed in its turn in the mnemonic centres and adds to the material of thought. When the child afterwards learns also to write, a last series of impressions, those derived from the motions of writing, is deposited in the kinæsthetic centres. In the end the child cannot think otherwise but by speaking and in a certain way also reading internally (internal language), nor can it any more express its own states of consciousness and make itself understood except by the reproduction of the sounds and graphic signs of words (external language).

The second part of the book treats on the elementary disturbances of the psyche (*Semiotica analytica*). It would lead too far to enter into a detailed account of the contents of this part. The purpose was to give a general idea of the tenor of the book. We may add yet, that the latter contains a considerable number of good illustrations. Those at the end of the book illustrating the impression in various mental diseases are especially fine.

ONUF.

LEITFADEN DER PHYSIOLOGISCHEN PSYCHOLOGIE IN FÜNFZEHN VORLESUNGEN. By Prof. Dr. Th. Ziehen. Third edition. Jena 1896. Gustav Fischer, Publisher.

This book was destined originally for the alienist, but has been so changed in its form as to adapt it to the necessities both of the physician and the naturalist.

As it may be assumed, that the book which appears now in its third edition, is known to a large circle of American alienists and neurologists, a lengthy review seems unnecessary. It may, however, be appropriate to quote some passages which illustrate the author's position.

In the preface Ziehen remarks, that the teachings brought forth by him differ much from Wundt's apperception doctrine, so dominating in Germany, and lean closely towards the so-called association psychology of the English. This book demonstrates that all psychological phenomena may be explained without adducing the aid of a special theoretical factor, the so-called apperception for their interpretation.

As rather characteristic of the author's point of view we further

quote Ziehen's definition of the concept "psychical": Everything of which we are conscious, and only this, is psychical; we know sensations and representations (*Vorstellungen*), only as far as we are conscious of them, and there is no necessity of postulating the occurrence of "unconscious" sensations and "representations" (*Vorstellungen*) as many authors have done.

Presumably the chapters on association of ideas will be of special interest to the neurologist. It is their purpose to demonstrate that even the so-called higher thinking processes can be explained by association of "concepts" (*Vorstellungen*) without postulating a new psychical faculty (Wundt's *apperception*) for their interpretation. The theory of a higher intellectual function of the frontal lobe is rejected.

The psychology of speech might have been more thoroughly treated.
ONUF.

LEÇONS DE CLINIQUE MEDICALE. By Prof. Pierre Marie.
Paris, 1896. Mosson et Cie, Publishers.

Although the lectures before us treat for the most part on subjects of general medicine, they discuss also neurological questions; and in view of the interest which former products of the author's pen have excited among American neurologists, we feel sure that this new book will also have a large circle of readers among them. The lectures are further delivered in such an attractive conversational form that it is an actual pleasure to read them.

The contents of the book are arranged in sixteen lectures. The first of these is devoted to the description of two important types of arthritis deformans. One of these types is designated as "rhumatisme chronique déformant infectieux," the other as "rhumatisme chronique déformant arthritique ou diathésique." In the form first mentioned infection plays the principal part while heredity is of minor importance; in the second form, on the contrary, heredity is a prominent factor. The two forms distinguish themselves not only in the mode of onset, but also in the clinical aspect.

The second and third lectures treat on thoracic deformities in some "medical affections." It is of special interest to note here that the "thorax en entonnoir," that is the thorax with funnel like incavation in the region of the lower end of the sternum, is considered by Marie as a physical stigma of degeneracy. Of the other thoracical deformities we take occasion to mention those produced by the progressive primary myopathies. Aside from the scoliotic and kyphotic deviations occurring here the author describes an especially interesting deformity which he designates by the characteristic name of "thorax en taille de guêpe [wasp-waist] des myopathiques." In describing the thoracic deformities of acromegaly Marie calls attention to the resemblance between the type of "polichinelle" and the acromegaly type, a resemblance which is so striking that in all probability the classical Punch (*Polichinelle classique*) is nothing else but an acromegalic.

Diabetes mellitus forms the subject for the fifth, sixth and seventh lectures. The diabète arthritique, pancréatique and conjugal are discussed here, and the multiple origin of nervous diabetes is pointed out. In characterizing the "accidents nerveux" of diabetes the author demonstrates how these "accidents" are marked by the relative rarity of loss of consciousness and especially of true apoplexy, further by the atypicalness of the paralytic manifestations, finally by the spontaneous tendency to regression of these nervous symptoms.

The seventh and eighth chapters treat on bronze diabetes and include

the report of a new case of this disease. We render here the enumeration of the "symptoms of nervous origin" observed in this disease, namely: insomnia, loss of sexual potency and absence of the kneejerks. As Marie correctly remarks however, these symptoms are in no wise typical of the bronze diabetes, since they are equally met with in common diabetes mellitus.

Chapters IX. and X. are taken up with a discussion on periodic (cyclic) albuminuria and concludes with the remark, that certain cases of this class, at least the case described by the author, present striking analogies with certain forms of migraine which to Marie is an affection of the sympathetic system par excellence, and that it might therefore be appropriate to designate these forms of cyclic albuminuria by the name "migraine renale."

The last six chapters discuss cyanosis in congenital malformations of the heart (XI., XII., XIII.), and generalized neuro-fibromatosis (XIV., XV., XVI.). The latter disease, Marie concludes, is characterized not only by the presence of the grains of fibroma molluscum and of naevi, but by the following manifestations on the part of the nervous system: intellectual depression, passivity, voluntary confinement to bed, disorders of cutaneous sensation and of the specific senses, cramps, various pains, arthralgias.

ONUF.

FEEDING IN EARLY INFANCY. By Arthur V. Meigs, M.D. Published by W. B. Saunders, Philadelphia. 25cts.

PRACTICAL POINTS IN NURSING FOR NURSES AND PRIVATE PRACTICE, with an appendix containing rules for feeding the sick; recipes for invalid foods and beverages; weights and measures; dose list, and a full glossary of medical terms and nursing treatment, by Emily A. M. Stoney. Illustrated with 73 engravings in the text and nine colored and half-tone plates. Price \$1.75 net. W. Saunders, Philadelphia, Pa.

A MANUAL OF OBSTETRICS. By W. A. Newman Dorland, A.M., M.D., 163 illustrations in the text and six full-page plates. W. B. Saunders, of Philadelphia, Publisher. Price \$2.50 net.

THE
Journal
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AMERICAN NEUROLOGICAL ASSOCIATION.

*Twenty-second Annual Meeting, held in the hall of the College
of Physicians of Philadelphia, on June 3, 4, 5, 1896.*

(Continued.)

REPORT OF A CASE OF "DREAMY MENTAL
STATE."¹

BY RICHARD DEWEY, M. D., CHICAGO.

Member Chicago Academy of Medicine, Physician-in-Charge Milwaukee Sanitarium
Wauwatosa, Wis., &c.

THE following short and imperfect description of a case of dreamy mental state is given to call attention to a condition which has not received much notice, but is worthy of systematic study and description for determining to what extent it exists, and more definitely establishing all its characters and relations as a morbid state of brain.

In introducing my subject I shall take the liberty of abstracting from a paper on this condition by Sir James Critchton Browne, in the London "*Medical Press and Circular*" for July 10 and July 17, 1895.²

Dr. Browne's paper consists of "observations on curious, fleeting, but elaborate psychical modifications which have been designated Dreamy Mental States, also voluminous mental states, and also intellectual auras."

The simplest form, the sense of Reminiscence or of

¹ Read by title.

² The Cavendish Lecture Dreamy Mental States, by Sir James Critchton Browne, M. D., LL. D.

Prescience, as it has been called, consists in the feeling that the present experience has been felt before or must be felt again. It is the feeling of pre-existence so often alluded to in literature. Dr. Browne quotes Walter Scott, Dickens, Wordsworth, Coleridge, Lowell and others, and considers these all abnormal manifestations.

"Defects of consciousness" are indicated by vagueness as to present surroundings and an increase of consciousness in another direction, accompanied by the too vivid revival of former surroundings. There is in this a negative element in the loss of control of the highest centres, and a positive element in the raised activity of other nervous arrangements, permitting of new cerebral combinations somewhat akin to those which take place during the activity of the imagination and flights of genius.

There are many different kinds of these dreamy states and they have not been classified—they are generally described as indescribable, and the crudest analysis discloses that they consist of an exaltation of subject consciousness and a degradation of the power of attention for the time being. They are abnormal in their essence and morbid in their tendency. While the simplest forms above alluded to are comparatively innocent, some of these dreamy states are related to epilepsy, of which Chritchon Browne seems to think they are frequently a precursor in a psychic aura.

Dr. Browne refers to the case of Hughlings Jackson, who said his fits began with "a sort of referring to old things that have happened," and one of Joseph Coates in which they were preceded by a "peculiar thought," suggests that the initial cry in the epileptic attack may sometimes be incited by these mental disturbances.

I will now give you the account of my case, which is imperfect in some respects, being obtained by correspondence, but nevertheless presents a state which is definitely marked and worthy of attention.

The patient, S., wrote me in 1895 substantially as follows:

"I have a trouble of a peculiar nature which I wish to describe and get your advice about.

"I am troubled with a feeling as though I were in a dream, which came on first one morning four years ago, while I was in the woods waiting for a rabbit which the dogs were driving out. I had been working hard on day previous and got up early in the morning and came

up into the country for a day's sport rabbit hunting. Altogether I was pretty thoroughly exhausted, which, I suppose helped that feeling to take hold of me. This dreaminess stayed with me for the rest of the day, and I have had it occasionally since then. "I have attended school three years since that time and have stood well in and enjoyed my studies.

"I am descended from one of the oldest and best American families and in all the line there have been no traces of mental weakness of any kind.

"My grand-parents have all lived to eighty years and above and at present I have a grandfather ninety years of age and in good health.

"I am twenty years old, have no dissipating habits, use neither intoxicants nor tobacco; am five feet eleven inches tall; weigh one hundred and fifty lbs., and my friends tell me I am the picture of health.

"This peculiarity has never seemed to affect my outward self although inwardly I do not feel the same as I used to, feeling less self-contained and less like applying myself to what is before me. It seems to act as a curb to my energies and ambition."

The following additional particulars were obtained :

Occupation: bookkeeper.

Mother: living 50 years old, healthy.

Father: " 70 " " "

(Father was 50 when patient was born.)

1 sister: died heart disease at 16 years.

2 sisters and three brothers: healthy.

Patient subject to attacks of nose bleeding about every three weeks for several days, bleeding often about 15 minutes at a time. Was "very sick" when three years old, does not know the disease. Has suffered from headache a great deal, but since eyes were properly fitted with glasses has had little trouble, (is myopic.) Habits good as to alcohol and tobacco (does not use them). Denies masturbation and all venereal disease. No sexual excesses. Seminal emissions occur about once in two weeks. No dizziness or vertigo ever experienced. No difficulty of ears (ringing, etc.) or eyes (except myopia, corrected). Sleep averages 7 hours; seldom disturbed by dreams and not troublesome when they do occur. Appetite good, also digestion, bowels regular. Pulse average 74. Memory not very good. Always fully conscious and not absent-minded even in dreamy spells. Is moody and subject to "blues", at

other times unduly elated. Emotions rather irregular, not quick tempered.

The letter continues:—

"As to "blues" I do not have them now as often as I used to. Partly because my mind is kept occupied and partly because I have become rather half resigned to this peculiarity. I very seldom feel blue when people are about me, but usually when alone. When in company I am usually vivacious and talkative. I seem to have fits of talkativeness. Sometimes I can't talk enough and at other times I don't open my head. This habit is about the only way I know of in which I display the effect of this peculiarity.

"One of my characteristics is that whenever I set about to do a thing, I nearly always do it with a big rush. I don't think I have one spark of laziness about me for when I am not sleeping, I am usually "hustling."

"I am exceptionally fond of music. I play four instruments and sing in choir."

Patient was given tonic of strychnia and bromides (the latter for 2 weeks) also cold baths.

"I seem to feel better physically, take an interest in business, and from all outward appearances seem to be a perfectly well man, but this 'dreamy feeling' will stay with me in spite of all I can do. If I could expel that from my mind I know that to be all that would be necessary to a speedy recovery. I have just returned from a short visit to my home, and while there it seemed as tho' I was but dreaming that I was at home, yet everything seemed perfectly natural and rational. My folks, I know, did not suspect that such was my condition for I talked and acted the same as when I saw them last except for the natural change which two years has made in my behavior.

"My parents told me that I had improved a great deal since I was at home last, yet it is four years ago to-day since this mental peculiarity came over me.

"I believe my case to be somewhat different from any other, and therefore no one knows quite the remedy for me. If I could find the person who did know I would give him all the wealth I shall ever earn beyond a living if he would cure me.

"If I am ever cured I think I shall be a better man than if I had never had this peculiarity, for I know that I am much more resolute than ever before."

Dr. Browne considers these dreamy states as allied to

epilepsy, and continues: "The risks attending these states in connection with epilepsy may be measured by the degree in which an emotional state enters into them, or in which they tend to pass over into action. Those that are colorless or agreeable are innocent, while those attended by fear, anguish, terror, etc., are likely to lead to convulsions, refers to observations of patients whose fits were preceded by such feelings.

"The actions that are sometimes repeated whenever these states occur—running, grasping, etc.—are not less ominous, and indicate a deepening or diffusion of the cerebral disturbance, making it correspond rather with somnambulism than with simple dreaming.

"While their connection with epilepsy illustrates these states, it is not the only transformation they may undergo, for a history of them is occasionally found in insanity without epilepsy, and the passage between them and mental disease can now and then be traced out. (Reports two cases.)

"The true morbid character of those states is shown also by the fact that they almost always occur in conditions of impaired health or exhaustion, or in persons affected with a heredity of nervous disease.

"Seeing, then, that dreamy mental states, although occasionally an appanage of genius, and often innocuous, sometimes lead to epilepsy or insanity, sometimes are one of a series of morbid events and sometimes impair the faculties of those who suffer from them, they are surely worthy of medical observation and research. Especially in children and in the young should they be sought for and studied. I do not suggest that mere children should be promiscuously subjected to crooked questionings, should have strange fancies put into their head or should be encouraged to introspection; but I do not counsel that when children exhibit anomalous nervous symptoms, forgetfulness, lethargy, paroxysms of passion, immorality, tremors, habit spasms or odd movements or tricks, insomnia or headaches, the possibility of dreamy mental states being present should not be overlooked. A few skillful exploratory queries by the doctor will generally bring them to light where they exist, even when they have long been scrupulously hidden away, and their discovery will be a great relief to the little patient and a guide to treatment.

"As regards the treatment of dreamy mental states it need only be said that it does not differ from that of cerebral neurasthenia and epilepsy."

It will be seen that I am indebted to Dr. Browne for the chief interest of my paper, but the case observed has points of interest, and if I can aid to directing other and better observers to this interesting field, I shall not have presented the above wholly in vain.

Dr. Browne details in this connection cases of "dreamy mental states" in a family, as follows:

M. G., a lady who lived in the latter half of the eighteenth century, was subject from girlhood to spells of "absent mindedness," which may safely be pronounced to have been dreamy mental states, always nervous and peculiar, bore ten children to a healthy husband, and died at an advanced age of epilepsy, which appeared first some years prior to her death.

T. G., her son, had peculiar seizures of loss of sense of "orientation," or, as he called it, "a topographical topsy turvy," during youth and early manhood. At 40 these changed to epileptic attacks, chiefly nocturnal, not impairing mind or health. Died at an advanced age of kidney disease.

M. E., his sister, a bright, energetic woman, had from girlhood to middle age periodic migraine with fortification outlines and vomiting. She had eight children, one of whom died of hydrocephalus and two of typhoid fever. Of the five survivors, two, a boy and a girl, suffered from dreamy mental states identical in each, consisting in sudden loss of personal identity, with fright, and accompanied with severe palpitation of the heart. The girl married and had two children, a boy and a girl, who were observed by Dr. Browne. In the boy, at the age of ten, there began to occur odd spells, which he described as a feeling of being "just nothing," with terror and palpitations. They never lasted over half a minute, generally came on when he was thinking of "religious" or out-of-the-way subjects, and always when he was alone, except in church. He did not lose consciousness, but used to pinch himself, apparently as if he feared it, and sometimes was able by a strong mental effort and diversion of attention to ward off the attack. He was shy of telling of his trouble till he was 14, when the spells became so bad they made his life miserable. Under proper regimen, country life, relief from brain work, etc., and the bromides, he improved, but they did not cease till his twentieth year. His sister, from the age of 8, had very similar spells. She called them "lost or funny feelings," and described them

as a feeling of complete nonentity. Her spells, however, were unattended with terror or palpitation, but there was a momentary uneasiness. Like her brother, she had startings on going to sleep and recurring dreams (in her case of flying, while her brothers were of swelling), and various other sensory disturbances. Was put under treatment like her brother and improved until her eighteenth year, when, after an attack of chlorosis, the spells again became very troublesome. The next year, however, they yielded to treatment, and she reports herself now quite free from them.

This dreamy state is thus shown to have occurred in four generations. In the first, definite description is naturally lacking. In the second, it had relation to ideas of space. In the third and fourth generations, and in four different instances, it consisted in a loss of personal identity.

Dr. Browne alluded to the fact that this state corresponded to that described by Lord Beaconsfield, who wrote:

"I was not always assured of my identity or even existence, for I sometimes found it necessary to shout aloud to be sure that I lived, and I was in the habit very often at night of taking down a volume and looking into it for my name, to be convinced that I had not been dreaming myself."

In four of these cases the state appeared at a certain age; the age was ten in the case of two boys and eight and nine in the cases of two girls. In these four cases the condition disappeared when maturity was fully attained. These states came on almost invariably in solitude.

He speaks of other conditions—that an "aura" or peculiar sensation appeared in the left arm, in regard to which it was suggested by Hughlings Jackson that this was due to the fact that the right or more subjective half of the brain was involved (in right-handed persons). Also Dr. Browne notes that in some cases height-terror and sense of falling or distress, in others expansive ideas, such as appear in nitrous-oxide inhalation or use of other anaesthetics were present.

POTT'S DISEASE. ITS SURGICAL TREATMENT, WITH A REPORT OF A CASE.¹

By JOHN PUNTON, M.D.,

Kansas City, Mo.

AMONG the diseases incident to the vertebral column none are more worthy of serious and careful attention from both surgeon and neurologist than spinal caries. To Percival Pott of England belongs the credit of first directing attention to its tuberculous nature, and since that time it has been designated as Pott's Disease. That it is a distinct manifestation of the tubercular diathesis is now a well established scientific fact.

It occurs in all ages, but more commonly in early life. According to Gibney, eighty seven per cent. of all cases begin before the fourteenth year. Gower declares that males are more prone to it than females, but the difference in sexual incidence is not great.

Its causes are both predisposing and exciting, the chief of which, however, are hereditary and trauma.

Authors differ as to the region of the spine most frequently invaded by the disease, but the least liable is said to be from 1st to the 4th, dorsal; the 11th and 12th, dorsal; and the two extremities of the spinal cord. The upper portion of the cervical region is regarded as the most dangerous.

In most cases the disease begins in a very insidious manner, hence the diagnosis is attended with more or less difficulty in the earlier stages. In a very excellent article by G. E. Gorham (see "New York Medical Record," Aug. 5, '93,) he states, "That the diagnosis before deformity occurs is more difficult and far more important, but it can generally be made." "The symptoms in its early diagnosis, that is, before angular curvature takes place, according to the best observers, he states are rigidity of the spine, neuralgic pains, lateral curvatures, high temperature, grunting respiration, impeded locomotion."

¹ Read by title.

tion, peculiarity of gait and carriage, night cries and a general ill condition."

Without further enlargement I desire to report a case which has recently come under my observation, presenting several features in common, but others in particular, which renders its study equally interesting and instructive, both from a medical as well as a surgical standpoint.

A. B. McKeehan, aged 27; occupation, barber; single; enjoyed good health until the spring of 1894, when he complained of bodily pains, which were neuralgic in character. A few weeks later he accidentally discovered a small tubercle on his spine at a point corresponding to the 6th dorsal vertebra. It was about as large as an ordinary hickory nut, and in addition to the neuralgic pains was accompanied with a tingling sensation confined to the lower limbs, but which left him in the course of a few weeks. The tumor, however, gradually increased in size, apparently reaching its full development in about six months. During the whole period it was marked by a general progressive muscular weakness, which was especially evident in the lower limbs. This impeded his locomotion to such an extent that by April 1st, 1895, he was compelled to take to bed, although still able to use his legs, it was not long before he lost their entire use, and there was complete paraplegia.

He had been confined to his bed for about seven months when he first came under my personal observation, which was the 5th day of November, 1895. Upon inquiring into his family history, I learned that none of his ancestors had suffered from tuberculosis; that his grandparents on both sides had lived to a ripe old age; that his father died of an unknown disease (but certainly not phthisis) at the age of 40; that his mother is still living, enjoying the best of health. He, also, had two sisters, both living in good health, while his collateral relationships enjoy the best of health. He declares that he, himself, has enjoyed good health until the present attack; that his habits had always been temperate; that he did not use liquor in any form, but smoked occasionally. He denied ever having had syphilis or any other venereal disease, and there was no evidence to believe otherwise.

In stripping him I found a distinct angular curvature of large size, with consequent displacement backward to the left of the spinous processes of the 5th and 6th dorsal vertebra. The projecting tumor was quite large and

felt hard to the touch as if it was solidified. Above the lesion tactile sensibility was normal, but below it there was a slight general anæsthesia. The deep reflexes were markedly exaggerated, and ankle clonus was present in both limbs. There had been at no time during the development of the disease the slightest rise of temperature, and after the first two months an entire absence of pain; indeed, this had never been a marked symptom. The motor paralysis was complete in both limbs, and of the spastic type. There was no involvement of the bladder or rectum, nor had there been at any time. He was a well-preserved man, being large and fleshy, weighing 165 lbs. and standing 5 feet 8 inches high. There was no atrophy of the paralyzed muscles but a slight tendency to flaccidity. His pulse, temperature, and respiratory functions were all normal. He had no cough, night sweats, diarrhœa, or any other concomitants of phthisis. There was no history of rheumatism or other acute disease, and thorough examination of the heart, lungs and kidneys failed to illicit any abnormal condition. The functions of the skin were normal with the exception of a slight general anæsthesia below the lesion.

I enquired very carefully as to whether he had ever received any injury, slight or severe, and he positively declared he had not. He also claimed he had never been exposed to wet or cold or other extreme atmospherical vicissitudes. His appetite was good and he slept well,

In consultation with Drs. Halley, Wainwright and Jackson, a diagnosis of Pott's Disease of the Spine was made. All agreed that the symptoms indicated cord compression, hence surgical interference was indicated.

In view of the great diversity of opinion at the present time as to the relative value of surgical measures, more especially laminectomy in cases of paraplegia, due to spinal caries, I naturally hesitated to recommend it, more especially after consulting the more recent text-books on spinal surgery and finding them more or less silent on the subject. I presume had I followed the usual directions given, I should have resorted to the extension of the spine method for a year or two, assisted by the plaster jacket or corset and constitutional treatment.

After having the patient under observation, however, for three weeks, in consultation with Dr. George Halley (a surgeon of national reputation), during which time I read up the literature on the subject, including a report

of six cases by Alfred Parkin of London (see "*British Medical Journal*," Sept. 2, 1894,) in which he strongly advocates the operation rather than extension of the spine, we both agreed that laminectomy offered the patient the best chance of relieving the paralysis by giving the cord plenty of room to recede.

This opinion was concurred in by the following language of Parkin: "It will be seen that in four of the six cases I tried extension and counter extension for varying periods, and in no case did any good result follow; in fact, the patients got worse whilst under observation. I have been unfortunate in the results of extension, but I cannot imagine how it can be of much use, except, perhaps, in cervical caries, and both of my cervical cases were too acute to admit of long delay."

Commenting further, he says: "Dr. W. Thornburn in his recent lectures at the College of Surgeons advocated extension for so long a period as 18 months, and quotes Meyer as saying that 55 per cent. from a series of 218 cases so treated recovered. Unfortunately, Meyer also states that 41 per cent. of those patients were lost sight of or had not yet recovered." And Dr. Thornburn says further: "In patients so treated, relapses are unquestionably common, and recovery is rarely if ever absolutely perfect."

Contrasting such results with those obtained by Mr. Lane in his series of eleven cases, read before the Clinical Society in October, 1891, in which a complete laminectomy was done, that is, not only the removal of the lamina to relieve the pressure on the cord, but, also, a careful search for caseous material, and as far as possible its entire removal, one cannot but be struck both by the immediate benefit derived as the result of such treatment and by the permanency of the results. "Besides the relief of the paraplegic symptoms the performance of laminectomy and the removal of the caseous matter appears to have an important effect on the tuberculous diseases. Cases of spinal caries so treated get well quicker than with the usual treatment, although as a rule they are the worst types of that disease."

In the "*Annals of Surgery*" for June, 1894, there is a report of two cases of laminectomy, with a tabulated collection of 52 cases of laminectomy of recent date. The report goes on to say: "These two cases demonstrate, as does others, the advisability of early operation, and the good results of such operation, and the evil that may

be seen to follow non operative procedures. They also substantiate these facts:

"1st. That laminectomy in recent injuries of the spinal column, causing compression of the cord and its associate symptoms, is a justifiable operation.

"2nd. That hemorrhage is not so uncontrollable as to warrant not operating.

"3d. The collection of 52 recent cases of laminectomy shows clearly that the operation of laminectomy has steadily progressed in value, and that it is not only a probable operation, but under circumstances, absolutely advisable."

With such a weight of argument in its favor we decided to operate, consequently on November 23d, 1895, my friend, Dr. Halley, performed the operation of laminectomy on both the 5th and 6th dorsal vertebrae. The operation proved a success. In about ten days the patient regained the full use of his limbs, and the paralysis which had lasted about eight months disappeared entirely.

A few days later, my friend, Dr. Sachs, of New York, in response to an invitation, visited Kansas City for a few days, during which time I asked him to hold a clinic before the students of the University Medical College, which he kindly consented to, and among others I furnished him the patient referred to. After enlarging on the differential diagnosis of spinal lesions, he confirmed the diagnosis of Pott's Disease.

In about four weeks we discovered that there was a marked tendency for the deformity to return, as the spinous processes of the 7th and 8th dorsal vertebra were projecting backwards, causing a well marked tumor. Muscular weakness was also felt, and the legs were daily becoming more restricted in their movements. A second operation was, therefore, decided upon, and January 28th, five weeks from the first operation, Dr. Halley removed the lamina of the 7th and 8th dorsal vertebra. This, also, proved a grand success, for a large abscess was discovered and its contents evacuated. Since the operation the patient has regained the full use of his limbs, the anesthesia has entirely disappeared, and the only symptom left behind was a small discharging sinus, which has since become entirely obliterated. He is still in bed, however, but I trust in due course of time by the aid of a brace or other mechanical appliance he will be able to walk, and thus be fully restored. His general health is perfect.

Some of the most interesting features of this case, and which does not conform to the usual rule of experience are the following :

1st. The age of the patient

2nd. The entire absence of inherited taint or tuberculosis.

3d. There was no cachexia or the least emaciation whatever.

4th. There was no evidence of trauma, exposure, syphilis, or other of the more common causes of spinal caries.

5th. There was no elevation of temperature throughout the course of its development

6th. There was no pain even on pressure or movement at seat of lesion.

7th. There was no atrophy, bed sores or other trophic disturbances.

8th. Independent of the deformity, which most authors agree may arise from other causes, many of the more common diagnostic symptoms of Pott's Disease was absent. The special object, however, in reporting the case was in the hope of eliciting a discussion on the relative merits of surgical measures in the treatment of spinal caries.

NERVE DISTURBANCE FROM INDIGESTION.

BY HENRY S. UPSON, M.D.

Of Cleveland, O.

(ABSTRACT.)

THE paper dealt with disorders, resulting from intestinal indigestion, and likely to be confounded with neurasthenia or mild melancholia. Three cases were reported. The first, for comparison, was of a young man who was first seen at the end of the first week of typhoid fever. He was slightly delirious, and for a week very sleepless. This condition became intensified into one of coma. Marked improvement followed the administration of calomel in laxative doses at the height of the disorder during the the third week.

The second case was of a man 55 years of age, who, after an attack of dysentery, from which he had recovered, developed marked depression of spirits, tremor, nervousness and sleeplessness. There were moderate pains and rumbling in the intestines, but no symptoms of stomach dyspepsia. Milk diet, intestinal antiseptics and mild laxatives were followed by steady general improvement.

The third case was of a woman who after a mental shock slowly drifted into a condition simulating mild melancholia. She cried very easily, was much afraid that she would lose her reason and be sent to the asylum, and was sleepless. The patient was very fleshy and slightly anæmic. She was put on a milk diet, and given strontium salicylate and later benzosol. Her condition improved markedly, but she remained until last seen, some months after the beginning of treatment, dependent on the maintenance of a rather strict diet. The cases were too few to warrant generalization. The writer expresses his belief that great care is necessary in distinguishing these cases from those of original neurasthenia and from cases of reflex nerve disturbances.

DISCUSSION.

Dr. LANGDON said:—I merely rise to second what has already been said about the importance of intestinal antisepsis, and the greater importance of diet than medicine. I think the essayist's remarks subject to the same qualifications. The sweeping generalization that the upper portion of the alimentary canal is the digestive tract, and the lower portion is a culture field for bacteria is rather too strong. The first part of this may be true, but the generalization of the latter part carries with it the inference that these bacteria are to be gotten rid of by every possible means. When we go back to the fundamental rule of bacteria, we cannot fail to recognize the fact that they are of two kinds—conservative and pathogenic; perhaps a third kind—the indifferent. I do not think it follows that because the large intestine may be a breeding ground for bacteria, this is necessarily bad for the patient. It is well known that we could not live in our streets but for certain bacteria, although this is going back to the elementary part of the subject. It may be well to emphasize the fact that there are bacteria and bacteria, and that certain kinds are normal to the large intestine. Because the presence of some species may have a bad effect, it does not follow that other species will have the same. I indorse what the doctor has said about intestinal antisepsis in certain diseases, and specially the use of mercury. Some years ago I called attention to the administration of bichloride of mercury in typhoid fever, in which we desire to diminish putrefaction in the intestines. I based my argument on fifty consecutive cases without a death, and on the theoretical ground that when calomel is given, it is converted into bichloride by hydrochloric acid. It is true this is a roundabout way of giving bichloride, but it is a well known clinical fact that calomel in small doses judiciously given has a beneficial effect in this disease. One of the advantages shown is the appearance of bile in the stools, which I have often seen after giving bichloride, and which, of course, is nature's antiseptic. It is a significant fact, moreover, that certain nervous diseases commonly regarded as infectious are attended with jaundice and other effects of non-appearance of bile in the intestine.

Dr. URSON said he entirely agreed with what Dr. Langdon had said.

Dr. JAMES HENDRIE LLOYD presented

A CASE OF DIABETES INSIPIDUS WITH PARALYSIS OF THE SIXTH NERVE.

The disease occurred in a young man aged 24. It came on suddenly after an apoplectiform or epileptiform attack, the exact nature of which remained as yet obscure. The supposition was that there was a commencing lesion in or near the floor of the fourth ventricle involving the "diabetic centre," and either the nucleus or intra-pontine tract of the sixth nerve. It was rather remarkable that the seventh nerve, whose fibres bend around the nucleus of the sixth nerve, was exempt. The diabetes, the urine amounting to almost 200 oz. on some days, was insipid. It would be interesting to note whether it became saccharine in time. If so, would the fact indicate distinct "centres" for insipid and saccharine diabetes? It was rather remarkable that the patient had many stigmata of degeneration and an extraordinary development of the right mammary gland, quite equal to that seen in young women at puberty. The genitalia were normal. No satisfactory history of either congenital or acquired syphilis could be made out.

VERTIGO MENIÈRE.—REPORT OF A CASE. - COMMENTARY.¹

BY FRANK K. HALLOCK, A. M., M. D.

Cromwell, Conn.

THE following case represents a study of the cardinal symptoms, deafness, tinnitus and vertigo, as related to each other and to neurasthenia.

Mrs. B., American, aged 54, married, formerly school teacher; family history good and no inherited defects or tendencies known as special aetiological factors. At two years of age had, so called, brain fever of seventeen weeks' duration. The cranial bones separated at the sutures and patient forgot how to walk. Recovered fully. During childhood fell down stairs and suffered severe contusions with loss of consciousness. No after effects. At ten years had measles followed by abscess in right ear which broke spontaneously. No impairment of hearing resulted. Puberty at twelve to thirteen years, with no abnormal symptoms. Began teaching school at eighteen and married at twenty-five years. First child two years later with a single eclamptic seizure (head drawn to right side), three days before delivery. Mammary abscesses followed. After an interval of two years, the second and last child was born with no trouble. Death of husband necessitated a severe struggle to support herself and children. At one time she was overcome by the heat but did not lose consciousness. On another occasion, she experienced a sudden drawing sensation extending from the occiput into the eyes, making them feel crossed and strained. There was a momentary blurring of vision, but no pain and no headache. Examination of the eyes by Dr. S. B. St. John, of Hartford, Conn., revealed amblyopia of right eye, of long standing. The patient was totally unaware that she could not read with this eye. The menopause began in the forty-seventh and terminated in the fiftieth year. This undoubtedly aggravated the general nervous state, but produced no special symp-

¹ Read by title.

toms. There is no syphilitic or tubercular taint, and patient has never had typhoid or scarlet fever, or diphtheria. At the time of the onset of the first ear symptom the patient was in fair physical condition. She was by no means as vigorous and energetic as formerly, but she had complete self control and exhibited no nervous symptoms. The patient is naturally very capable, sensible person of strong will power.

Development of the Symptoms. On the morning of October 2, 1885, at the age of forty-three years, patient was awakened by a loud, roaring noise, in the head and right ear, which she compared to the sound of escaping steam. This roaring, or hissing, continued constantly for five weeks and then subsided into a persistent beating, or pulsating sensation, referable to the right ear. No head, eye, or other symptoms appeared, but the patient was greatly exhausted by the tinnitus. Dr. St. John reports that there existed only the ordinary symptoms of catarrhal otitis media, with slight loss of hearing which gradually increased. It was not until six months after the onset that patient accidentally discovered partial deafness in the right ear. The irritating nature of the tinnitus, with anxiety as to hearing power, and apprehension of brain disease, gradually affected her general health and rendered her extremely nervous. In the fall and winter of 1890-91, patient was more than usually annoyed and weakened by the tinnitus, and also there began to appear a new symptom, namely, a mild degree of dizziness. Finally, in February, 1891, five years after the beginning of the tinnitus, the first pronounced attack of vertigo occurred. This took place in the night with severe vomiting, and the resulting prostration was extreme. Numerous slight attacks of dizziness with tinnitus followed for a period of four months, and then these symptoms increased in severity and were associated with a gastritis lasting seven weeks. During this gastritis the vertigo was constant and there occurred three exacerbations at intervals of about two weeks apart. The final paroxysm being one of the most severe ever experienced by the patient. From this time on the tinnitus was persistent, and occasionally, vertigo was noticed.

In February, 1892, one year after the appearance of the vertigo, the tinnitus reached its height, and with it marked acoustic hyperæsthesia. The patient now consulted Dr. William H. Thompson, of New York, who thought the labyrinthine disease was associated with a

sub-acute pachymeningitis of the right parietal region. Vertigo, at this particular time, was not a prominent symptom. Tenderness over both occipital nerves was noticed. The treatment prescribed was antiphlogistic, with counter-irritation over the mastoid region. Improvement followed, and the tinnitus grew less annoying and was often absent for short periods.

In September, 1892, occurred the fifth pronounced paroxysm of vertigo, and it was accompanied by a dysenteric attack. The sixth paroxysm, two months later, occurred under personal observation, and apparently was induced by what proved to be the final effort to menstruate. The vertigo was sufficient to excite nausea but not vomiting, although the latter could have been easily produced by further movement of the body. The treatment inaugurated at this time was directed almost entirely to building up the general condition. The life of the patient was carefully regulated, and for a number of months there was a steady gain in strength. No vertigo appeared until the following summer (1893). Overdoing and the hot weather were the assignable causes. The attack was comparatively mild in character, but was associated with dyspepsia and dysentery. Rallying from this, the patient continued in a very comfortable condition until the next spring (1894), when she again went beyond her strength in social affairs, and suffered in consequence a mild prostration. On this occasion there was no vertigo or other special symptom, except the tinnitus, which was well marked.

A year now intervened, and the patient was so encouraged by her good health that she once more overtaxed herself, and experienced as a result a most severe vertiginous attack. This paroxysm occurred in February, 1895, and is the eighth and last of the major series of attacks. During the summer of 1895, although the patient was much prostrated and had a return of former intestinal disturbance, there was no further vertigo. This, the last attack, will bear a brief description. The patient was resting quietly on the sofa when the vertigo suddenly seized her. She had had her noon meal three hours before, and there was no sign of indigestion. The nausea and vomiting, however, were extreme, and for two days she could not lift her head off the pillow without a return of vertigo and vomiting. The vertigo lasted four days. The tinnitus, contrary to the rule, was roaring and not pulsating in quality, and

seemed of tremendous force. With the subsidence of the vertigo the tinnitus settled into its usual mild, pulsating form. The power both of sight and hearing was greatly reduced, and for a number of days objects appeared far away and blurred, and sounds were indistinct and perverted. The feeling of exhaustion was so great that patient could not walk until four days after the vertigo ceased. I saw the patient four months after this attack, and she had not yet recovered her previous good health. She complained of being restless, irritable and depressed. Strength tests showed her to be weaker, and the reflexes were slightly exaggerated. The eyesight was diminished, with a tendency to blurring. Noises were painful and distressing, and the hearing power was slightly reduced. She was advised to spend the summer in Maine and lead a quiet, regular, out-door life. This plan was followed, but soon a tonsillitis, right-sided only, developed, and with the accompanying exhaustion came a series of gastric and intestinal disturbances which continued until fall. Throughout this summer attack the tinnitus was more or less present, but there was no vertigo. During the past winter, 1895-96, the tinnitus has been more marked, owing to two successive colds, or grippe attacks, which induced a catarrhal condition in the pharynx and Eustachian tubes. The patient has not been able to endure much exertion, but the weakness, although fundamentally neurasthenic, has not been characterized by any marked nervous symptoms such as existed in the past. On March 7, 1896, patient experienced a slight dizzy sensation on the street and in the house. There was no turning or true vertigo, but merely the feeling of insecurity of the body as to its position and relation to surrounding objects. Throughout the history of these attacks there has been no loss of consciousness and no headache.

EXAMINATION.

This was made in October, 1892, when the patient first came under my observation, and the neurasthenia was most pronounced.

General physical condition when free from pronounced ear symptoms: A short sturdy woman, in good color and flesh. Expression somewhat tired and anxious. No organic disease. Pulse 82, full and easily excited. No atheroma. No tenderness on cranium or spine. No incoördination. Romberg symptom absent. No sensory or motor symptoms except as noted below.

General mental condition: Intellect strong; good common sense, will power and memory; no hysteria. Temperament is not nervous, in the ordinary sense, but active and energetic. She is rather intense and enthusiastic, but has good self control.

Special symptoms referable to the neurasthenic condition and manifested under excitation: Over active reflexes, superficial and deep; fine general tremor, especially in hands and about mouth; palpitation of heart; dyspnœa; fluctuation in pulse and vaso-motor disturbance; flushing of face; hot and cold extremities; gastric disorders; constipation or the reverse; variation in the amount and character of the urine. All exertion is difficult, and it is a great effort to use will power and maintain self-control; the state of feeling vacillates, apt to be unduly elated or depressed; irritability of temper and unreasonableness is noticed at times, and also morbid apprehension.

Special Senses: Smell and taste normal. The cutaneous sensations, touch, temperature and common sensibility were normal and also the muscular sense. Dr. Fred Whiting of New York examined the eye and ear and reported as follows:—Eyes: movements of globes normal, axes parallel. Pupils normal in size, shape and reaction.

Distant vision: O. D. $\frac{1.8}{20} + 2D = \frac{1.8}{10} \supset \text{cyl.} + 2.50D$ ax $90^\circ = \frac{1.8}{50}$ (great improvement).

Distant vision: O. S. $\frac{1.8}{20} + 50D = \frac{1.8}{20}$. Cyl. not accepted in any meridian.

Near vision: O. D. Jaeger No. 5, with difficulty, with glass $4D \supset 2.50$ ax 90° .

Near vision: O. S. Jaeger No. 1, with glass $2.25D$.

Accommodation: O. D. = 0.; O. S. = 10' to 14'.

Astigmatism (Javal). O. D. $\frac{3}{20} D$ ax 90° ; O. S. $+ .50D$ ax 90° .

Extrinsic Muscles, at 20 feet: Dynamic divergence 2; Abduction 5; Adduction 5.

Visual field is normal; color perception is correct.

Lens and media clear in both eyes.

O. D. size and form of retinal eyes normal; macula gives usual appearance of choroid in amblyopic eye; fundus hyperopic and astigmatic.

O. S. Fundus hyperopic and normal.

Conclusions: (1) Present condition has always existed, and patient is neither the better nor worse than would be accounted for by age and neurasthenia.

(2) Patient has not now, and probably never has had, for reading, binocular vision. The sight on the right eye is so poor that no attempt is made to fuse the retinal images, and hence no strain results, and the eyes need not be considered a factor in the case.

Ears.—Membrana tympani show slight traces of catarrhal otitis media, the right somewhat more than the left. Both tympanic cavities are in excellent condition, the ossicles vibrating freely and showing no ankylosis of articulation. The Eustachian tubes are patent by Politzer, Valsalva and catheter. Hearing of the tuning fork by both aerial and bone conduction is very much diminished on the right side. On the left side aerial conduction is reduced but the bone conduction is normal. The result of the examination is given in detail under the heading deafness. Tinnitus was well marked throughout the tests and also vertigo sufficient to cause staggering and uncertainty in the gait.

Conclusions.—(1) Evidence of previous catarrhal otitis media in both ears. (2) The function of the middle ear on the right side is too nearly normal to account for the symptom-complex. (3) The peculiar character of the deafness, the tinnitus and the paroxysmal attacks of vertigo favor the diagnosis of labyrinthine disease. (4) The single symptom, slight deafness in the left ear, must be considered a relic of former otitis media and referable to the middle ear.

CLINICAL HISTORY AND STUDY OF THE CHIEF SYMPTOMS.

Tinnitus.—This was the first symptom to appear eleven years ago and it has continued nearly constant to the present time. Its onset was sudden and severe. The quality at first was a high-pitched roaring which lasted five weeks and then passed into a low-pitched and pulsating form.

When the patient gets excited the tinnitus becomes aggravated, and is described as "pumping" or "throbbing." With the exception of the onset and the eighth or last vertiginous paroxysm, fourteen months ago, the tinnitus has not assumed a "roaring" quality. Its intensity varies according to the state of the general health and the amount of physical or mental exertion attempted. Under the most favorable circumstances, when the patient is feeling well, it is often absent a number of hours, and although she is always conscious of it sometime during the day, it is endurable. At other

times when a neurasthenic condition is present the slightest excitement of mind or body is sufficient to arouse it. The tinnitus is synchronous with the pulse and is directly influenced by vasomotor changes. Hence, a passing thought, or body movement which disturbs the circulatory rhythm, will at once increase it. The tinnitus is always very pronounced, but, contrary to the usual testimony in these cases, it does not increase in intensity as an attack of vertigo approaches. Five years ago, the sixth of its duration, the tinnitus reached its maximum intensity, and it was at this time that a sub-acute pachymeningitis was supposed to be in progress. During this exacerbation no vertiginous symptoms of importance were experienced. At this time patient was much troubled with dreams at night and frequently awakened with pulsating tinnitus and fear of suffocation. No vertigo noticed on these occasions. In this same connection it should be noted that on two occasions previous to the appearance of the vertigo, paroxysmal attacks of tinnitus were associated with severe dysentery. Also during the spring of 1893 and summer of 1895 no vertigo accompanied a decided increase of the amount and intensity of the tinnitus consequent upon a period of general prostration. Pressure on the carotids sometimes, not always, would temporarily lessen the tinnitus.

Deafness. This was not noticed by the patient until six months or more after the onset of the tinnitus. The hearing, however, was reduced, and with a watch heard at thirty inches the record of Dr. St. John reads $\frac{4}{30}$ for both ears. Two years later the hearing had decreased to contact on the right side, and eight inches on the left. A few months later, following active treatment, this increased to one inch in the right ear and ten inches in the left. The condition at this time was a mild catarrhal otitis media. Seven years after the onset of aural symptoms, that is, October, 1892, Dr. Whiting's examination gives for hearing power the following data:

Watch, aerial conduction, R, at contact.	
" " " L, at 12 inches.	
Fork, middle C, aerial conduction, R.	$\frac{30}{30}$.
" " " L.	$\frac{30}{30}$.
" " bone " R.	$\frac{45}{30}$.
" " " L.	Normal.
" " vertex and teeth heard only on left side.	

In June, 1895, four months following the last pronounced attack of vertigo, the hearing power on the R. side had slightly decreased and on the L. or good side, it had fallen to 6 inches.

On March 12, 1896, examination resulted as follows :

Watch, air, R.	on contact.
" " L.	at 3 inches.
" bone R.	not heard.
" " L.	heard well.
Middle C. Fork, air, R.	$\frac{2.5}{6.0}$.
" " " L.	$\frac{4.5}{6.0}$.
" " bone, R.	$\frac{1.0}{6.0}$.
" " " L.	Normal.
" " on vertex and teeth only on L.	side.
" " bone, closing R. meatus did not	increase sound.
" " bone closing L. meatus in	creased sound.

All varieties of sound are still heard, voice, bell, whistle, piano, etc. The lower notes more distinctly than the upper. The tests of hearing power have given slightly varying results as follows: An increase or improvement in the hearing when the tinnitus is marked or when the patient is excited, or when there is noise present; a decrease in the hearing is noticed in the relaxed condition following a paroxysm of vertigo or tinnitus.

Vertigo. This appeared five years after the tinnitus suddenly in the night, awakening the patient out of sleep and terminating in severe vomiting. A few months previous to this, patient experienced at intervals slight dizzy turns, and throughout her sickness since, mild attacks of dizziness have been of varying frequency. She would be able to walk and manage herself fairly well, but there was apt to be some staggering in the gait, and a general uncertainty of all her movements. The tendency was to fall or pitch forward, especially in going down stairs. Patient almost always kept quiet, and in the horizontal position, and on this account these attacks were seldom accompanied by nausea. There is no question, however, that very often this simple dizziness would have increased to genuine vertigo with nausea and vomiting if she had been compelled to stand up and move about. Sudden movements, especially of the

head, and stooping over, invariably induced a vertiginous condition which compelled patient to lie down. In severe attacks of vertigo the patient could not lift her head from the pillow, or even open the eyes without precipitating vomiting. These so-called major attacks have occurred eight times, and have been in each instance truly paroxysmal in nature. That is, the onset of the vertigo has been sudden and overwhelming with marked nausea and vomiting. At such times the subjective and objective sensations are very pronounced, and the patient herself, bed, objects, and the entire room appear to whirl round all together, taking the direction of right to left, that is, away from the affected ear. This direction is considered to be of rare occurrence, but there is possibility of error in the replies of patients, and the data on this point are not sufficiently accurate to be satisfactory. In this instance the objects appeared on the right periphery of the field of vision, passed across and disappeared at the left border of the field, that is, the direction of the motion was from right hand to the left, in front, not behind the body. The patient was not conscious of any ocular symptoms, but in connection with this phenomenon this query is raised: could the difference in function between the right or amblyopic eye, and the left or good eye influence the direction of this apparent movement of self and objects? Could for instance, the vertiginous sensation calling forth, as it does every effort, motor and sensory, to correct and regain the lost equilibrium, could it, in the general tumult that prevails, provoke the poor eye to unwonted action, such as to attempt to overcome the muscular insufficiency, with the result stated, viz: directing the subjective movement from right to left? The action of vomiting brings relief, but it is followed by severe physical exhaustion and mental depression lasting several days. The character of the vomiting varies with the intensity of the vertigo; in the lesser attacks simply emptying the stomach is sufficient to break the paroxysm; in the more severe attacks the vomiting is repeated as often as the vertiginous sensation returns, and the final acts usually brings forth considerable bile. The forced and jolting movements of travel by sea and land, do not excite the vertigo, and looking over a precipice, or off a housetop creates no disturbing sensation.

The gastric and intestinal symptoms are unquestionably of nervous origin and foundation. They are generally

preceded and always accompanied by nervous manifestations, the most pronounced attacks being consequent upon a paroxysm of tinnitus or vertigo. The fluctuating behavior of the symptoms, and the failure and contradictory action of ordinary remedies indicate the variability of the nervous control with a predominance towards an atonic condition.

The neurasthenia is of a simple, not profound type, and must be considered to be the result of the operation of at least three factors or conditions. First, an anxious and exacting life of teaching school and rearing her children; second, superimposed upon this the development of an harassing and persistent tinnitus which is sufficient, single handed, to produce nervous exhaustion; third, the climateric influence serving to accentuate and fasten together the neurasthenic symptoms. The neurasthenia is spoken of as simple not only to indicate the character and severity of the symptoms but also to call attention to the fact that in this case we are dealing with an individual of fundamentally good nervous control, and on this account, it is believed, the neurasthenia, as a whole, is far less profound than if it occurred in a person of strong nervous temperament. In the latter instance, in addition to the increased neurasthenia, it will be noticed that the attacks of vertigo occur more readily and with much greater frequency, several distinct prostrations during one day, and repeated upon a succession of days, being not uncommon. In the present patient there exists a neurasthenia of medium grade, marked by exacerbations which generally have tallied with the series of vertiginous paroxysms, eight in number, covering a period of ten years.

The treatment has been almost entirely hygienic. Attention to the diet, balancing the exercise and rest, and regulating the daily habits soon brought about an improvement in the bodily functions. For a long time, however, the patient was unable to depart from her regular daily program without experiencing fatigue and reviving the annoying tinnitus. All treatment aimed directly at this latter symptom failed as to permanent effect. Calm, easy living from day to day was the only way for her to escape this incessant plague, and it was repeatedly demonstrated that keeping within the limitations prescribed she was safe and comfortably free from the tinnitus and gained steadily in strength. Unfortunately the conditions of her home life have constantly

tempted her to over-do, and the result has been a neurasthenic condition more or less persistent.

The effect of the drugs.—These experiments were made three and a half years ago, when the neurasthenia was most marked. Brief but distinct tests of single doses were made with the drugs mentioned below during the vertiginous attack, but no positive results were obtained except in the case of potassium bromide. Tests with the drugs increasing the pulse rate and the arterial tension gave these results: (1) Sulphate of strychnia, $\frac{1}{80}$ gr. t. i. d., acted well as a mild general stimulant and relieved the chronic constipation then present; given at $\frac{1}{30}$ gr. t. i. d. it increased both the tinnitus and the general nervousness. (2) Sulphate of sparteine, $\frac{1}{20}$ gr., would very frequently lessen tinnitus; at other times repeated doses produced no effect. (3) Fluid extract of cactus grandiflorus, ten drops, acted well to steady patient much in the same way as small doses of strychnia. In twenty drop doses a stimulating effect was noticed, even to mild exhilaration. Of these three drugs, sparteine affected the tinnitus most favorably and the strychnia and cactus operated best as general tonics. After continued use these remedies soon failed to be effective, and varying the size of the dose did not restore their value. Practically they were useless. Nitroglycerine and amyl nitrite, two drugs of similar action, increasing the pulse rate and decreasing the arterial tension did not generally effect the tinnitus in ordinary doses; $\frac{1}{100}$ gr. of the former and a three drop pearl of the latter usually made no impression upon the ear beating. On one occasion seven doses of nitroglycerine $\frac{1}{100}$ gr. in seven consecutive hours produced only a slight ache and feeling of tightness and confusion in the head with only a moderate increase of the tinnitus. Two pearls of amyl nitrite, of three drops each, taken in quick succession, would produce a transient increase of the ear beating. The sixth drug, especially tested at this time, was bromide of potassium. A dose of thirty grains would invariably relieve the general hyperaesthesia, tinnitus and vertigo, and it proved the only agent of permanent value in relaxing the paroxysmal condition and calming the entire nervous system. Ten grains of chloral, which acts like the bromide in reducing both the pulse rate and the arterial tension was sometimes added in the extreme nervous conditions with most happy results. The effect of the bromide on the auditory impulses was

very distinct; tests of the hearing under its influence showed a reduction to one-half the ordinary power. These tests, limited though they are, reveal beyond question the intimate connection of the tinnitus with the circulation in the ear. Other conditions being favorable, an improvement of the tinnitus, temporary and of varying degree, is noticed to follow the administration of drugs which effect a distinct but uniform change in the blood supply and rhythm. For instance, an increase both in the pulse rate and the tension, as well as a decrease in the same, yielded a favorable result, whereas an uneven change in the circulation, such as occurs when the rate of beat is increased and the tension diminished, produced an exacerbation of the tinnitus.

COMMENTARY.

Apparently the history of this case would show the tinnitus and deafness as originally due to a middle ear catarrh, and that five years later, following the appearance of vertigo, the labyrinth became involved, and then these three symptoms were referable to an affection of this part. Certain it is that for the past four years the deafness in the right side must be called labyrinthine and that in the left or good ear, although it has increased from $\frac{1}{50}$ to $\frac{2}{50}$, has not changed, but still remains of middle ear character. The condition in the left or good ear is not easy to interpret. On one hand the middle ear condition does not seem severe enough to cause such a loss of function as has occurred, and, on the other hand, there appears to be no invasion or involvement of the labyrinth, relying on good bone induction as the chief diagnostic sign. The fact that the tinnitus is right-sided points to a more pronounced lesion in the right ear; and further than that, the abscess in this ear occurring at ten years of age, must not be forgotten as a factor of unknown significance in predisposing to a labyrinthine affection. Whatever the nature of the lesion existing in the labyrinth of the right ear, its course has been slowly progressive. Admitting the difficulty that exists in differentiating between middle and internal ear deafness, and considering the onset and character of the tinnitus, and reviewing the entire history of the case, one is warranted in the belief that possibly the deafness of the right ear was labyrinthine from the beginning of the aural symptoms, but it escaped detection as such. Such a supposition in no wise

reflects upon any previous diagnosis. On the contrary, it only emphasizes the fact that in the early history of Menière's disease it is well nigh impossible to define the character of the deafness. It can be referred to the middle ear as easily as to the labyrinth, and only the subsequent history of the case can determine to which it belongs. In view of the difficulty of diagnosing the character of the deafness, the writer has been inclined to advance the following considerations as helping to explain the problem:

First, the majority of labyrinthine affections are supposed to be consecutive to some previous ear trouble, and hence it is not unreasonable to consider that at some period the deafness may be of mixed character, partaking of both middle and internal ear qualities. Secondly, at the onset of the labyrinthine involvement, and for some time subsequent, the local condition of the labyrinth is very disturbed, and the nerve endings, judging from the accompanying tinnitus, are in a high state of excitation. The auditory nerve, as a whole, shows a loss of power, but such function as remains is temporarily over-active, so that the bone conduction for the time being may not appear to be especially diminished. Thirdly, positive variations in the result of tests which fluctuate according to the general condition. The nerve reaction in tense nervous excitement may differ from that in extreme relaxation sufficiently to allow a diagnosis of deafness to be made, at one time of the middle ear, at another time of the labyrinth. Fourthly, slighter variations in the results of tests due to increased tinnitus and surrounding noise. Of course, these considerations have most weight in the early stages of the ear disease, when the loss of function is not well marked.

The diagnosis of subacute pachymeningitis of the right parietal region, either by itself, or in connection with the aural conditions must remain doubtful. At the time one of the chief symptoms was present (tenderness over the occipital nerves) the tinnitus was pronounced, and the patient was in a very anxious state of mind, and this latter condition, not infrequently, is known to be accompanied by cranial tenderness.

Following the history and course of the symptom-complex we notice a gradual diminution in the amount and severity of the vertigo and tinnitus. This is in keeping with the general rule that as the hearing power grows less, these symptoms fade away. Exacerbations of

both vertigo and tinnitus, however, may occur at any time, and be as pronounced as when the deafness was less marked. Neither of these two symptoms is dependent on the degree of deafness, nor upon each other. There is a certain general relation but no special dependence, and the increase or decrease in severity of one symptom does not necessarily involve a similar change in another. The nervous explosion or vertiginous paroxysm in the great majority of instances, it is believed, depends more upon a condition of general nerve instability, than upon the specific ear lesion. That is, the aural condition, whether it operates directly as a peripheral irritation, or is involved secondary to central disturbance, usually has associated with it an unstable nervous state making it possible for a paroxysm to occur. Occasionally, such a paroxysm does appear in an apparently strong and well-balanced individual and it may be of the severest type. The rule is, however, that where such a person has one, or at most a limited number of attacks, at wide intervals, the neuropathic individual will be subject to a series of attacks, at frequent, but very irregular intervals. Hence the importance of neurasthenia as a factor in the occurrence of vertigo *Menière*—if we mean by this term, nervous weakness, lack of control, instability—can scarcely be overestimated. Without exception, in this case, the history of every paroxysm of any prominence and the majority of even the minor dizzy and ear beating attacks, shows them to be cotemporaneous with periods of more than ordinary nervous exhaustion, or consequent upon more than the usual amount of physical or mental exertion. The practical teaching of this case in regard to treatment is this: The symptom-complex, *Menière's disease*, is of secondary importance to the general condition of the patient. Study to improve this and teach the patient how to live a quiet, hygienic life. The actual symptoms should be the subject of earnest and serious treatment (at present chiefly experimental) on the part of the physician, but the patient should feel that they are of minor significance compared to the fundamental well-being of the entire body.

REPORT OF THE COMMITTEE ON NEUR- ONYMY.¹

PRESENTED BY THE CHAIRMAN, BURT G. WILDER, M.D.

It is recommended: 1. That the adjectives *dorsal* and *ventral* be employed in place of *posterior* and *anterior* as commonly used in human anatomy, and in place of *upper* and *lower* as sometimes used in comparative anatomy. 1880; 1882; 1889; 1889, A; 1890; 1892.²

2. That the cornua of the spinal cord, and the spinal nerve roots be designated as *dorsal* and *ventral* rather than as *posterior* and *anterior*. 1880; 1882; 1889; 1889, A; 1890; 1892.

3. That the costiferous vertebræ be called *thoracic* rather than *dorsal*. 1880; 1889; 1889, A; 1890; 1892; 1895.

4. That, other things being equal, *mononyms* (terms of a single word each) be preferred to *polyonyms* (terms consisting of two or more words). 1880; 1882; 1889; 1889, A; 1890; 1892.

5. That the *hippocampus minor* be called *calcar*; the *hippocampus major*, *hippocampus*; the *pons Varolii*, *pons*; the *insula Reilii*, *insula*; *pia mater* and *dura mater*, respectively *pia* and *dura*. 1880; 1882; 1889; 1889, A; 1890; 1892;

¹ The October number of the *Journal of Comparative Neurology* will contain an extended commentary upon the Report by the chairman of the committee.

² The dates after the names refer to earlier recommendations as follows:

1880. Paper by the chairman before the American Association for the Advancement of Science.

1882. *Anatomical Technology*. Wilder and Gage.

1889. Articles "Brain" and "Anatomical Terminology." Reference Handbook of the Medical Sciences, Vol. VIII.

1889, A. Report of the Committee of the Association of American Anatomists, adopted unanimously at Philadelphia, December 28.

1890. Report of the Committee of the American Association for the Advancement of Science, adopted unanimously at Indianapolis, Aug. 25.

1892. Report of the Committee on Biological Nomenclature of the A. A. A. S., adopted unanimously Aug. 23.

1895. Report of the Committee of the Anatomische Gesellschaft, adopted at Basel, 1895.

1895 (excepting that the German Committee retain *calcar avis*, *pia mater* and *dura mater*).

6. That the following be employed in place of their various synonyms:

Mesencephalon. 1880; 1882; 1895.

Pallium. 1895.

Oliva. 1882; 1889; 1895.

Clava. 1882; 1889; 1895.

Operculum. 1889; 1895.

Fissura centralis. 1882; 1889; 1895.³

F. calcarina. 1889; 1895.

F. collateralis. 1889; 1895.

F. hippocampi. 1882; 1889; 1895.

Cuneus. 1889; 1895.

Praecuneus. 1889; 1895.

Clastrum. 1889; 1895.

Fornix. 1880; 1882; 1889; 1895.

Infundibulum. 1882; 1889; 1895.

Vermis. 1882; 1889; 1895.

Hypophysis. 1882; 1889; 1895.

Epiphysis. 1895.

Chiasma. 1880; 1882; 1889.

Oblongata. 1889.

Lemniscus. 1889; 1895.

Monticulus. 1889; 1895.

Tegmentum. 1889; 1895.

Pulvinar. 1889; 1895.

Falx. 1882; 1889.

Tentorium. 1882; 1889.

Thalamus. 1880; 1882; 1889; 1895.

Callosum. 1880; 1882; 1889.

Striatum. 1880; 1882; 1889.

Dentatum. 1889.

In moving the adoption of the Report the chairman stated that the Committee thought it better to offer a small number of terms upon which action might be unanimous. Individual opinion and usage might vary from year to year, but the risk of a change or reversion upon the part of the Association was to be avoided, if possible.

After remarks by Drs. Spitzka, Mills, and Langdon, the Report was adopted unanimously.

³ The German Committee adopt *sulcus* in this case, but the abandonment of *heleno* for *centralis* is the more essential feature.

SPORADIC CRETINISM.

By WHARTON SINKLER, M.D.,

Philadelphia.

(ABSTRACT.)

Katie W—. Age, 30 years. Was first seen November 11, 1895. The patient had the appearance of an overgrown girl.

No history of Goitre or other disease in her family could be elicited. The other members of the family are perfectly healthy and normal in every respect. During infancy it was noticed that the child was short and stubby. The bones were thickened, and the tongue was large and projecting. The teeth came late, and she was unable to walk until she was three years old. At the age of two years, the mother noticed that she seemed to stop growing. She began to attend school at the age of ten years and continued to go to school until just before presenting herself for treatment. She progressed slowly at school, but learned writing, reading, and the rudiments of arithmetic. Menstruation appeared first at the age of twenty-six years. After the beginning of this function there was notable gain in several respects. On examination, the following points were noted: The patient's height was 112 $\frac{3}{4}$ centimeters; weight 74 pounds. Her appearance was typical of myxoedma. The face was short and round, the lips thick, especially the lower, which hung down. The tongue was contained within the mouth and while of full size, was not notably larger than normal. The teeth were widely separated, the upper jaw containing nine and the lower ten. The hair was coarse and scanty. The breasts were moderately developed and pendulous. The thyroid gland could not be detected. The hands were clumsy. The feet and legs were cold, and the skin in some places was rough and scaly. The voice was like that of a child of twelve years, and the intelligence corresponded with that of one of that age. The patient was given three grains of desiccated thyroid gland three times a day, and marked improvement immediately followed its administration.

The following measurements show the change in height and weight which took place under treatment:

	Weight.	Height.
July 15, 1895.	67 $\frac{3}{4}$ "	115 8 "
November 11, 1895.	74 lbs.	112 $\frac{3}{4}$ c. m.

THE UNCERTAINTY OF CEREBRAL LOCALIZATION WITH REFERENCE TO OPERATION
ESPECIALLY IN CONNECTION WITH
GROWTHS IN SILENT REGIONS
WITH INVASION SYMPTOMS.

By WHARTON SINKLER, M.D.,
Philadelphia.

(ABSTRACT.)

The accurate localization of a cerebral growth is never easy, and it should always be borne in mind that there are many cases in which tumors of the mid brain give rise to symptoms, which closely resemble those of a growth in the motor area. Even in cases which have been carefully studied for a long time, no tumor has been discovered on operation, although after death the growth has been found deep seated. Growths, which are most likely to cause errors of diagnosis are those, which begin in silent regions, like the frontal lobe, for example, and which encroach gradually upon the motor area. The writer referred to the statistics collected by Starr. Up to 1896 there were 162 cases, in which the operation of trephining was done for brain tumor; of these cases the tumor was successfully removed, and the patient recovered in 72, and 48 cases, that is in about 30%, no tumor was found at the operation. In 35 patients the tumor was successfully located and removed, but the patient died. Out of several hundred cases of brain tumor, which have been studied post mortem by different observers, it was estimated, that but 7% could have been successfully removed had operations been attempted before death.

The writer called attention to the great improvement in the results in brain surgery. In the past three years a much greater percentage of cases have recovered and this is probably owing to the fact that the operations have been done by more skilled surgeons. The writer quoted two cases, which illustrated the difficulty of locat-

ing brain tumors, even when apparently distinct focal symptoms were present. CASE I.—E. M. Male. Age 26 years. A printer by occupation. No history of syphilis or traumatism. When 25 years of age he had a convulsion without any assignable cause. The attack was general. After this he had no seizures for nine months, when he had an attack similar to the first. Since this time the attacks have changed in character and have recurred at various intervals, from several in a day to one in three months. The attacks when he first came under observation were as follows:

The primary movement consists in twitching of the left angle of the mouth and a sense as if the face were being drawn towards the ear. The left arm is then drawn up, and occasionally in an attack the legs are flexed. There is no aura preceding the attack, and there is no loss of consciousness. The eyes were examined but with negative results. The patient's general health was good, the memory was preserved and there was no paralysis of any part of the body. The patient continued under observation until his death in 1896. His condition remained about the same for three years except that the attacks became rather less frequent. He continued at work, but gave up his trade for that of out door work, and he attributed his improvement largely to the more healthy life that he was leading. In January, 1893, he began to complain of severe pain in head, situated over the left brow, and in the vertex.

In March of this year it was found that optic neuritis was present. In spite of potassium iodide, the pain persisted with great severity, and the optic neuritis increased. It was therefore decided to trephine. The operation was done by Dr. Keen and a large opening was made in the skull over the face center on the right side. The brain bulged immediately, showing great pressure, but careful probing failed to reveal the growth. The patient recovered speedily from the operation.

Here was a case, in which the symptoms plainly pointed to a cortical lesion, but although it was evident that there was a deep seated growth, none could be found at the operation. The operation, however, afforded great relief to the symptoms. The pain subsided and the vision markedly improved. At the end of a year there was recurrence of pain, and optic atrophy took place. The attacks became again more frequent, but were confined to twitching of the face.

In April, 1896, owing to the constancy of severe pain, it was decided to re-open the skull at the point of the original trephine opening. At this operation a well defined tumor presented itself, but owing to the excessive hemorrhages it was not possible to make any attempt at removal.

On June 5, 1896, the scalp was again opened and a portion of the growth as large as a small hen's egg, was removed. The mass sprung from the frontal lobe and extended to the fissure of Rolando. The patient experienced relief from pain, but there was complete left hemiplegia following the operation, and there was gradual failure of strength. The patient died July 3d. No autopsy was made.

CASE II.—P. A. Age 57 years. Male. Single. Denies syphilis. Temperate in his habits, says that he had good health until 7 years ago. Had lived in the West in mining regions, and had been in a good many brawls, and once received a severe blow on the head. Seven years ago, without warning, began to have severe convulsive seizures. These involved the right side alone. There was loss of consciousness during the attack. In the intervals of the attacks he had frequently obscure sensations in the right arm, which he believed to be mild attacks. There was a perception of the movements in the right side before loss of consciousness. None of the attacks was followed by loss of power. The last severe attack occurred in April, 1895; since this, he has had occasional vague sensations suggestive of the attacks, but none for past two months.

About December 1st, 1895, he observed progressive weakness of the right upper extremity. Six or eight weeks later the right leg began to grow weak. On examination, February 7th, 1896, there was marked left hemiplegia; and the face was drawn to the right. There was no aphasia. Knee jerks increased. Sensation preserved. Eyes examined by Dr. de Schweinitz, and the fundus was found normal. The symptoms pointed to a cortical lesion, which was at first probably irritative, and later became destructive. It was decided to trephine over left motor area. On exposing the cortex it was not possible to demonstrate the presence of a tumor. The patient suffered no disadvantage from the operation, but no improvement took place. He grew progressively worse, and died 54 days after the operation. At the autopsy a tumor was found situated in the left frontal lobe. It was

superficial, involving the cortex of the frontal lobe and dipped down into the gray matter and extended to the motor area. To the unaided eye the growth did not appear to involve the motor area. The brain was placed in Müller's Fluid for hardening for further examination.

The post mortem in this case shows that even had the trephine opening been made directly over the growth, it could not have been removed on account of its having infiltrated the brain tissue. The symptoms during life were evidently the result of the proximity of the growth to the motor area.

Such a case warns us to be thoroughly careful in studying in detail every symptom before deciding upon an operation, or at any rate before venturing to make positive diagnosis as to the location of the growth, and should also make us cautious as to the prognosis given in such a case. These cases should not discourage us from operative interference, because they illustrate the small risk attendant upon such operations, and also the relief, which is afforded to urgent symptoms, even when the growth has not been removed.

A STUDY OF APHASIA.¹

By DR. B. ONUF,

Brooklyn.

(ABSTRACT.)

The case reported concerns a woman who suffered an apoplectic stroke from embolism. After the general symptoms of the insult had passed away, right hemiplegia with motor aphasia, alexia and agraphia remained. At the time of the first examination, about 10 months after the apoplectic insult, the aphasia was almost entirely recovered from, but the faculties of reading and writing were still greatly altered. Vision $\frac{1}{6}$ on both eyes. Normal visual fields. Sense of color perception normal. In short, no visual disturbances of any kind.

The interesting features of the case were:

1st. Marked disturbances of the faculty of reading, but the patient can read words better than spell them; she often reads a word correctly but spells it wrongly. In some instances it can be shown that she spells from the sound of the word read. She, for instance, reads "one" correctly but spells it w, o, n. These facts tend to prove that Grashey and Wernicke are wrong in stating that reading is always done by spelling.

2d. Written characters are read with more difficulty than printed ones.

3d. Copying is done better than dictation-writing which may be explained from the fact that in copying the memory has to be taxed much less, as the patient has the text to be copied from constantly before her eyes. A similar explanation may be given for the fact that dictation writing is much more impaired than reading if we further keep in mind that both these functions are in intimate connection with the motor-speech concepts.

Although the motor-speech concepts had been recovered, their association with the visual memories (for reading) and the indirect association (over the sound memories) with the graphic motor memories had not

¹ Read by title.

yet been re established. Other things being equal, it is natural that dictation writing should be more impaired than reading, as in the first case part of the dynamic nerve energy (Neuroeym activity--Forel) has to be spent in remembering the words dictated.

4th. The patient shows the reduction in function of the reading "apparatus" which Bastian has called attention to. The memories of some letters cannot be evoked voluntarily, although they can be called up by association. The patient does not recognize the letter g, v, x, at first, but finds them by spelling the alphabet until she comes to the letter in question.

5th. The patient shows the peculiarity of using printed types, instead of script, in writing. She is not absolutely unable to write script, but she does it so badly and with such difficulty that she prefers to write with printed characters. Writing with the contracted right hand was not possible, she had to do it with the left.

In accordance with Pitres and Charcot the writer concludes from his observations that there must be a homologon of the motor speech centre, viz., a special graphic centre containing the memories of the motions required for the execution of written characters. Destruction of these memories causes inability to write in written characters while writing with printed characters may be possible with the help of the visual letter and word memories. This centre of the graphic memories is, however, probably situated in close proximity to the arm centre; possibly both may be contained within the same cortical area.

PRELIMINARY REPORT OF THE COMMITTEE ON THE AFTER CARE OF THE INSANE.¹

BY DR. HENRY R. STEDMAN,

Of Boston.

YOUR committee, composed of Drs. Stedman, of Boston; Dr. Dana, of New York; Dr. Dercum, of Philadelphia, would report that a circular letter embodying the reasons for and purposes of After Care Associations for discharged insane patients who are public charges, was prepared and sent to the superintendents of the hospitals for the insane, to a number of members of this association and certain persons prominent in charitable work in the States of New York, Pennsylvania and Massachusetts. The letter also requested opinions on another matter incidental to such an undertaking, viz: the establishment of convalescent hospitals for the insane. This in itself was thought by many superintendents of prominence, who were written to, to be a practicable suggestion, and one which, if carried out, would be likely to make a decided advance in the care of the insane. It is chiefly the prominence thus given to this subordinate part of the work before your committee that necessitates further inquiry before committing the association to the advocacy of a step involving state legislation. With regard to the practicability of organizations of after care associations under private auspices for giving relief to discharged patients, there seems to be little difference of opinion, but this matter also would be pushed with more confidence after further inquiry. Your committee wish, therefore, to have further advice and suggestions from others who are interested in the matters of insanity and charity throughout the entire country. We accordingly ask that the final report be deferred until the next meeting of the association.

H. R. STEDMAN,	} Committee.
C. L. DANA,	
F. X. DERCUM,	

¹Read by the Secretary.

EPILEPSY AND OTHER CONVULSIVE DISEASES; A STUDY IN NEURO-DYNAMICS AND PATHOGENESIS.

By DR. F. W. LANGDON.

CASE OF HYPEROSTOSIS CRANII.

By GUY HINSDALE, M.D.,

of Philadelphia.

THIS specimen was recently presented to the Mütter Museum of the College of Physicians by Dr. Charles Herwirsch of Philadelphia, who has kindly furnished me his report of the case of which the following is a summary: The patient, a white woman, single, enjoyed good health up to her 64th year. She was a normal individual, mentally and physically, of a very lively disposition, and a hard worker. She was then attacked with rheumatism and confined to bed for one year, when the gradual enlargement of the head began. Until within a few months ago she was able to go about her room with the aid of a cane, but in January, 1896, she was unable to walk unattended, and had to be helped in and out of bed. She became listless and never conversed, but made short replies when spoken to. She never complained of pain, but did not like to have her head palpated. Near the time of her death, which occurred on March 13, 1896, she became very restless and troublesome at night, made frequent cries, and became impatient, and easily lost her temper. Insomnia, refusal of food, coma, and finally death at the age of 71. The head measured 71 cm. in fronto-occipital circumference, and between the meatus auditorii over the vertex 43 cm. The veins were very prominent over the scalp and pulsation indistinct throughout the course of the tortuous and dilated temporal arteries. The lower half of the head was not enlarged. There was no acromegaly or

myxoedema; but there was slight bowing of the long bones of the lower extremities, most marked in the left leg.

On removing the calvarium the bone was found unusually soft and friable, and could easily be pricked out with the scalpel. In the temporal regions the external and internal plates were fused; elsewhere the relative

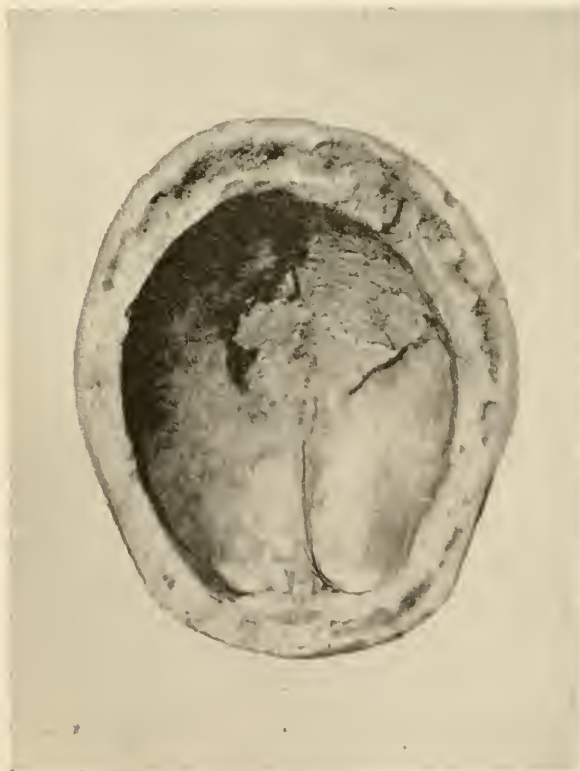


amount of diploë was much diminished in proportion to the greatly increased size of the bone; this was most evident in the occipital region. The measurements at the section are as follows in millimeters.

Fronto-occipital diameter, 22.8; biparietal, 18.8; surface length, sagittal, 31.2. Thickness, right occipital, 35; frontal, 29; left temporal, 14.

The detached skull cap weighed 1870 gms. (4 lbs. 2 oz.) The brain weighed 1360 gms. (48 oz.)

There was nothing in the brain membranes noteworthy except a slightly indurated and thickened dura. The brain fitted easily in the normal sized cavity of the vault. The ventricles were hyperdistended with clear serum; the ependyma was normal; no hemorrhagic



lesion or other alteration was found in the encephalon.

Both femurs were thickened and slightly curved, with the convexities forward and outward. The epiphyses were much enlarged and covered with a new growth, capped as it were with osteoplastic incrustation or exostosis of friable mealy bone, more so than was exhibited in the skull-cap, where the densest bone of the body was found.

The specimen presents, therefore, the condition of rarefying osteitis or hyperostosis cranii. Baumgarten describes cases of this kind under the name of Leontiasis ossea. Only two specimens in this country resemble this one in size. One is in the Warren Museum at Harvard University, and measures $1\frac{1}{2}$ inches in its greatest thickness; the second is in the Army Medical Museum at Washington, and is from a mulatto woman. I am indebted to Dr. Curier R. Marshall for the photographs and plates herewith presented.

NEWSPAPER RABIES.

By IRVING C. ROSSE, A.M., M.D., F.R.G.S.,

Washington, D. C

A HACKNEYED topic, but one of never-failing recrudescence, with the daily press at this season is hydrophobia.

Whether it is or is not a special disease, the late paper of Dr. W. T. Walker of Virginia, and the comments of the Pasteur people as to the said paper's being utterly unworthy of notice, show that there is still much doubt, uncertainty, and even hostility in the minds of medical men as to the value of the so called anti rabic vaccination, and even as to the existence of a special and distinct disease known as hydrophobia.

In newspaper rabies from the bite of a rabid animal, and alleged to occur from a few days or even two years after the bite, the symptoms are too familiar for repetition.

While various citations, ancient, foreign and current, go to show the widespread dismay and terror respecting the unseen and unfelt mischief from the ravages of mad dogs, there occur on the other hand the expression of doubts of a preponderating character by able physicians who look upon the disease miscalled hydrophobia, as proceeding from the bite of a dog, as nothing more than one of the instances of *deliramenta* among the learned; or as a purely contingent disease; depending for its existence upon some peculiar individual state of the mind and body, or upon the seat and nature of the wound, quite independently of virus communicated by the bite.

Out of many concurrents may be cited one whose name carries with it all that is estimable for integrity, learning and skill, the celebrated Heberdeen,* who, at the age of 91, in full practice in London, declares he never saw the disease arising from the bite of a rabid animal; but he decidedly mentions having witnessed the principal symptoms of hydrophobia, namely, the extreme dread of all liquids.

In 1826 doubts of hydrophobia were put forward in an

*Comment. de morb. hist. et curat, p. 136.

essay by White, and in 1827 Mr. Lee wrote a work to show that individual condition and not the injury prove the non existence of hydrophobia, and even went so far as to inoculate himself with the saliva of a rabid dog. About the same time Dr. Gerard, of Paris, wrote a book with a similar object to show the non existence of the rabic virus.

In addition to works written to prove the non existence of this virus the nosological lists of past days admit *spontaneous* hydrophobia, in which the incidental loathing of liquids occurs in several inflammatory and nervous affections.

Further exponents of the medical mind in this direction were come across by me when at work on the Index Catalogue of the Library of the Surgeon General's Office, where occur references to hydrophobia by the hundred under the sub-headings of hysterical, nervous, simulated, spontaneous, etc. Some of these references go back to the Homeric era and the time of Cellius Aurelianus, who taught that the disease may develop in man in a spontaneous manner; while many of the cases reported are said to have followed bites of cats, horses, and even those of a duck and a hen. I am aware that it is an unenviable position to controvert a long established delusion and appearing on the minority side of a question to launch one's little barque upon a troublesome sea; but if doubting men had never set face against false belief and torn away the veil of darkness, many of our intelligent and respectable citizens, of Massachusetts, for instance, would still testify in cases as to the existence of the "evil eye," and to having seen witches riding on broomsticks through the air.

Without going into elaborate discussion of the subject, let us determine, if possible, the present status in regard to that uncertain disease which writers, since the time of Galen, admit often exists without the symptom from which it takes its name.

During many years of travel in parts of the world where hydrophobia is supposed to be distributed geographically, I have been unable to obtain personal information of a single case, and many of the oldest practitioners of great experience in the latitudes of canine rabies tell me that they have never seen a case. As a matter of fact, they seem almost as hard to authenticate as shark bites which, by the way, I have spent a number of years in investigating.

In Asia Minor and in Constantinople, the home of pariah dogs, one never hears of hydrophobia. The Secretary of the Japanese Legation in Washington tells me that he has never known of the disease in Japan, and that in Korea, with more dogs than any other country, such a thing as hydrophobia is unheard of. In Germany we hear but little of it, many years going by since a case was reported in Berlin; in London, with its five and a half million inhabitants, but one case was reported in 1892, and among 7 000 dog-bites treated in hospitals not one resulted in hydrophobia. The *St. James Gazette* of March 17th reports that of 8,000 stray dogs captured not one showed symptoms of rabies. Substantially the same remark applies to Birmingham.

I have not been able to find a single authenticated case in the history of the Washington "dog pound," and the records of the War Office are significantly scanty on this point.

At the Philadelphia dog-pound not a single case has occurred in twenty-five years among 150,000 captured dogs or among the employes bitten by them. A number of prominent physicians of that town have been investigating the subject for twenty years, and have even offered a money award for a case. One of these, Dr. Dulles, says that for sixteen years he has not learned of a single conclusive case from a dog or any other cause.

The statistics of New York for 35 years show nine years in which no death occurred, and two successive years in which there was not one.

At a recent discussion of this matter before the New York Academy of Medicine, Dr. Landon Carter Gray said that there is "not a neurologist in New York who had seen a case in his practice; that very few physicians in the country had ever seen one, and that he during twenty years had seen but one case, and to use a Hibernicism, he would not swear to that."

Dr. Birdsall had never seen a case of true rabies, but had seen a number of pseudo-rabies from fright, excited by the bites or scratch of a dog. None of these died.

Dr. H. P. Loomis said that of 20,000 necropsies at Bellevue Hospital eight cases were said to be hydrophobia, but no gross pathological lesions were found.

Dr. J. W. Byrom said he had been engaged in experimental investigations for three years; that the subdural inoculation in rabies was not always fatal since five or six per cent. recovered; that immunity was not uniform

after inoculation by the ascending series of Pasteur; inoculations under the skin scarcely ever produced symptoms, never rabies. Rabbits paralyzed with sub-dural inoculations if made to bite other rabbits failed to produce in them rabies; he had never been able to produce laboratory rabies and from this get a virus which would cause rabies in animals when injected under the skin.

Dr. Spitzka, who showed that symptoms resembling rabies may be caused by inflammation of the brain and meninges, said that cases heretofore recorded as rabies presented complex symptoms common to many different diseases; and that there were a number of intrinsic as well as facultative affections among dogs that present these symptoms.

Dr. Joseph Collins of the New York Post Graduate Medical School informs me that he has no faith whatever in the cases of hydrophobia, or alleged hydrophobia, or in the alleged cases of hydrophobia, spurious or genuine, treated in the so called Pasteur Institute in New York.

In a late report of the Medical Society of the State of Pennsylvania, Dr. C. W. Dulles, after six years spent in collating cases of alleged hydrophobia, says that a considerable number are utterly incredible and wholly spurious; that in France, the hot bed of hydrophobia and other neuroses, more people die from this disease and "Pasteur's disease" than used to die formerly from hydrophobia; and that the claims of cure rest upon the stupendous folly of having "cured" yearly about 1,400 Frenchmen,—more persons than have died of hydrophobia in the United States in a century.

The chief reason then for skepticism in regard to this badly elucidated disease seems to be the faulty nature of the evidence. Many of the so-called cases, when thoroughly sifted, resolve themselves into some distinct, recognizable disease, generally hysterical or nervous, in which terror and expectant attention are the main factors. In fact a number of other diseases besides hydrophobia have the common features of dread and inability to swallow water, associated with convulsive movements and psychic manifestations.

Medical annals since the time of John Hunter, who sneered at hydrophobia, abound in cases in which persons bitten by supposed rabid animals have manifested violent symptoms of hydrophobia, which have instantly disappeared on producing the animal in good health. False or simulated hydrophobia has in numerous well-

authenticated instances rapidly disappeared on the show of a little decision on the part of the doctor or other person.

Post-mortem examinations have often dispelled alarming announcements of hydrophobic outbreaks.

"Genuine cases of hydrophobia" have turned out to be something else after such examination. On the other hand, characteristic lesions of hydrophobia are found in perfectly healthy dogs.

Recent advance in the study of nervous diseases shows that the physical and psychic features of hydrophobia are common features of at least thirty other diseases, and that the lower order of animals is subject to many of the same diseases that inflict man. Dogs are subject to leucocythemia and small-pox, being protected from the latter by vaccination. They also have gonorrhœa, and I have seen one with seminal emissions and another with hæmorrhoidal tumors. Besides they have dreams, illusive transformations, epilepsy and delusions. The last-named could be easily mistaken for what is called hydrophobia. Moreover, many of the mental disturbances supposed to be peculiar to rabies may be produced artificially.

I am not aware that any one has yet isolated the microbe of hydrophobia. What purports to be such is also found in the healthy dog. There is besides no symptom of hydrophobia that may not be produced in dogs inoculated with decayed fluids, the spinal cord of a calf, or with soap, or with olive oil injected into the circulation.

As to Pasteur's antirabic vaccinations, the statistics both in this country and abroad do not warrant definite results. Many patients who have been inoculated at the Pasteur Institutes have not previously been bitten by rabid dogs, while many others, inoculated after the method, have died of what is called hydrophobia.

Careful collation of statistics show that in France the number of deaths from hydrophobia is greater than it was before Pasteur. The introduction of the "infallible method" has failed to prevent or eradicate rabies in dogs, and in no part of the world has it diminished the number of deaths from hydrophobia.

The principal contributors to the subject of late appear to be a few Italian and French physicians and the public press. That the Latin race finds more of this disease than others may be accounted for on demographic grounds similar to those familiar to English-speaking

neurologists, namely, that many of the deductions of the *Salpêtrière* do not apply to the Anglo-Saxon race.

German writers on *Thierheil Kunde* make occasional reference only to *Wassercheu* and to *Maulkorb*. The *St. James' Gazette*, advocating the muzzling order, was one of the principal promoters of the late mad-dog scare in England; while the numerous newspapers of our country, chiefly those of the Eastern towns, give reckless, exaggerated, and irresponsible accounts of a badly elucidated disease, the risk of incurring which is absolutely infinitesimal compared with that of bicycle accidents or being run over in the street.

Dr. Dulles, of Philadelphia, during six years has collated seventy-eight cases claimed to be hydrophobia, most of which, he says, are utterly incredible and wholly spurious: but admitting them all as true hydrophobia gives a yearly average of thirteen cases for the entire United States, or about one case a year to four and a half million inhabitants.

It is, moreover, a curious but significant fact that no one has yet claimed the large money award offered by various kennel clubs to any one who shall produce a well-authenticated case of hydrophobia in either man or beast.

On the whole, then, induction from bibliographical references, experimental research, and clinical experience seem to warrant these conclusions:

1st. That the notion of a toxic rabic bite is an old one, being mentioned by Homer but not by Hippocrates.

2d. But few physicians have seen a genuine case of this complex and badly elucidated affection.

3d. Among competent surgeons and neurologists there is wide difference of opinion, and even irreconcilable diversity as to the existence of genuine hydrophobia in man.

4th. Concerning the exact value of this Pasteur method, there is also considerable diversity of opinion, if not preponderant evidence of an adverse nature.

5th. And there is a difference of opinion as to whether pseudo-hydrophobia ever produces death.

6th. In view of the uncertain knowledge of the disease, which extenuates somewhat the circumstances of sensational publication, newspapers are hardly to blame for making statements inconsistent with biological or medical facts, since they merely reflect current opinion by holding the mirror up to nature and give us, so to speak, a radiograph of what is going on in the minds of medical men.

American Psychiatry.

UNDER THE DIRECTION OF

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EDITORIAL.

Perspective in Medical Thought.

We have all seen the so-called Japanese garden scene with the dog or cow plastered up against the side of the house, or in the air, all in one plane. Like the child's first drawings there is in it no definition of the relation of things. In medical work can we not trace the same lack of relation in the mental image or in its word-drawn descriptive pictures. Is not sometimes the part shown greater than the whole, the symptom made the cause and the cause the symptom.

In insanity, with its vaguely known philosophical, psychological and pathological boundaries, ignorance as an unavoidable addition mingles with this narrowness that works in all branches and tends to make the picture still more puzzling in its relation-

ships. Which is cause and which effect, is not only often a troublesome question, but also, does there exist the effect claimed, or for the effect does any physical cause exist?

In the therapeutics of insanity this could, to our thought, be most easily demonstrated, as it could, indeed, in medical therapeutics generally. One man can use "rest" as the central element in his treatment and show his statistics of cures. The other can use "exercise" as the central element and show like statistics, while to seemingly make matters worse, a third man from a cynical or sceptical stand (less popular no doubt) will point to a fairly similar proportion of cures and he has had no prominent line of treatment.

What is the trouble? Is it not in the lack of breadth of view that gives "perspective," that shows the relations of things. If you enter London or other large city without any previous knowledge and seek to find the most worthy sights of the city, you are continually following false leads. If, however, before making any attempt, you are taken to a high commanding tower, or are shown some comprehensive map and memorize the principal objects in their proper relations, the river and its course, the principal street one way, the principal streets across, the main buildings, etc., etc.; this "bird's eye" view which gives you main outlines, prevents your straying far before running against one of these memorized marks.

So in our therapeutics, if we can memorize some reliable lines or principles which we will recognize, we will not pass heedlessly along. In the above case, the therapeutics of insanity, evidently some of these lines are: 1st. Insanity, like other diseases, tends towards its own cure (*vis medicatrix naturæ*). 2d. Physicians' vaunted curative devices are so often proven only concomitants, that he should be always humble in his claims. 3d. Logical connection between cause and effect is always to be sought, and sceptical regard made of its absence, occasional seeming specifics to the contrary notwithstanding. These and other foundation principles will bring the logical thinker back to medium ground before he has wandered far. The conservativeness of experienced men is because their experience has drilled these things into their minds. If we are told that extremists and fanatics have contributed to and been necessary to the world's progress, we would incline to deny both statements.

Past history is full of these extremes. It is said men like to be humbugged and verily it seems so. Accepting the above principles and the conclusions toward conservatism as true, as all broad minded men must, the puzzling question comes, must we, or some other of our profession, follow all fads and enthusiasms in order to insure the rather minute resultant of facts secured by them. Exact answer is difficult, yet surely we most

honor those who do not go far into extremes. The best men in alienism and neurology of the past have not. They argue broadly and judicially, not on one side alone—not omitting consideration of all these questions involved, but omitting a *one-sided advocacy* of them.

As we look over the field of insanity, do we not find one man giving thyroid extracts and quoting his cures, one man extract of nerve tissue, one man hot milk and restraint sheet, one man opium and like drugs, one man depending upon hydrotherapy and mas-age, one man giving nuclein, one man rubbing in lard and increasing body weight, one man using eliminative measures, one man paying most stress to gynæcological operations, all doing well, but many of them in their first enthusiasms and claims forgetting to allow full value to the "*vis medicatrix naturæ*," and the other principles as above.

These treatments, each and all of them are highly worthy of study. It is not against delving into the study of remedial agencies of very slight probable value that we take note. Laborious studies into causes, into symptoms, into pathology, into all the relations of insanity we have persistently advocated—we earnestly wish for these columns, and gladly welcome as the only elements holding hope of progress. Yet we also would advocate a reluctance toward extreme statements regarding a new remedy or new method. All history teaches this. In learning the lessons taught us by the past, it is found, curiously enough, that the first results reported for a new method or remedy are almost always the most favorable, just in detail why it is difficult to say. It is not scientific to assume the tone of the political speaker namely, that all truth is on one side of the question. It is not true in that it is not the whole truth. A judicial, all-sided view is needed in medical reports.

Do those have less force and influence then, who hold back and study and wait, instead of enthusiastically advocating early the value of tuberculin, later of antiphthisin, and aseptolin; or in alcoholism, do the same for the cures; or for hypnotism, or for organic extracts. We may try all these things, to "prove that which is good," except, perhaps, those clearly illogical. Those having logical form we may try calmly, judge remorselessly, and in the light of principles before mentioned. "*Perspective*" is needed. The *present* new remedy should not, even temporarily, blind to all others, but take its place in the long list of the years to have its trial and to (almost surely) demonstrate its weaknesses or dangers. Of course, one's degree of credence is largely a matter of temperament, but it can be modified by study. We do not wish to be the means of stopping the progress of any single one of investigatory studies so much needed. But is it necessary that we become one-sided in the *advocacy of the results*?

In "causation" of insanity, lack of "perspective" shows also in that much thought is given to special exciting causes. How nearly worthless the whole list. The tables in reports are yet full of them. "Religion" or "religious excitement" was ten years ago a very commonly assigned cause, yet really only an incidental line of thought; occasionally, a last cause acting on a predisposition that was the main real cause. It has taken the last decade to quite fully take "uterine disease" from the most prominent to a doubtful position, while "menstrual irregularity," is losing its dire significance in the popular medical mind.

We would prophesy that many more causes will sink into the background, yet be willing to rest for the present on this: that the *predisposition* as a cause is the one central and important thing we should study. For are not these petty exciting causes usually only the last prominent events referred back to by the anxious relatives or the physicians, who have to place some cause in the blank assigned them.

If it were not for maintaining this same conservatism of statement we might say that *insane persons are born, not made*. It is with a good many modifications true. To see only a few transient cases this would not be prominent, but to one watching cases yearly as they come and go (or come and stay) it becomes more and more indelibly fixed in mind. Regarding syphilis and alcoholism as the two most directly powerful causes in the lists, it is yet at once apparent that of the many thousand syphilitics or alcoholics, only a few become insane, indicating clearly other elements of greater determining power. It would seem that the recognition of this element predisposition in all cases then might become a fundamental conserving principle in "causation" and help to place the others in their true perspective.

In that confusing subject classification also, lack of perspective is very pronounced. Our ignorance of the true pathology of certain forms is, of course, to blame, but over and above that, fundamental relationships are ignored for trivial ones. To name a form of insanity for some incidental subject occupying the mind instead of the broader view of the mode of origin, or the equally broad one of direct causation (if known), or the still more broad and prominent one of pathological change (if known) is to do this. To name a man a homicidal maniac is only tacking on the incidental or accidental line of thought or behavior as a principal element. So nymphomania names only an incidental element in the malady. Katatonia seems to us a needless attempt of a like character more recent. Such class names we consider to have only place as descriptive terms, not as designating special forms.

These remarks should not appear in any cynical or sceptical

spirit we hope, but in the firm belief that they express truth and that as truth they can be trusted to carry in the long run and will harmonize enough with innate conviction to make their its place secure.

ORIGINAL STUDIES AND REPORTS.

Transitory Mania, "By transitory mania," says Tuke.
a Case. "we understand that kind of acute

frenzy which, developing suddenly and rapidly, soon reaches its climax." Not only has the nature of the condition, thus briefly described by Tuke, been a matter of dispute, but even its existence has been doubted. Most works on mental disease, however, describe a condition of very short duration, differing in essential respects from other forms of mental alienation, and apparently independent of them. It is rarely seen in hospitals for the insane, partly because of the infrequency of its occurrence, and partly because its duration is so short that the patient has sufficient time to recover before his admission to an institution can be accomplished. Owing to the fact that it rarely comes under the care and treatment of the alienist, it has attracted but little attention, its importance being confined almost entirely to its use as a convenient form of insanity to be used as a defense in criminal cases. Several cases of this disease have been reported in the last few years, all of which show a uniformity in the more essential parts of their clinical histories, and with variations of more or less interest. One case of transitory frenzy has come under my care in this institution, a brief study of which may suggest some points as to the nature of the disease.

M., farmer; married; in moderate circumstances. His physical health had always been good, and except for the diseases of childhood he had suffered from no bodily disease; had never used alcohol and had used tobacco to but a slight extent; excessive venery and venereal disease may be absolutely eliminated. He is naturally of fair intellectual capacity, kind disposition and industrious habits. He had been insane twice before, once five years ago and once two years before the present attack, and both were similar to the present affection. In both, the cause was a violent emotional shock of a painful nature, the cause in the second attack being the death of a near relative. In the first attack the duration was a little less, and in the second a little more, than a day.

The family history is almost negative; the maternal grandfather was weak-minded in old age, but it seems probable that this condition was not more marked than the usual retrograde of advanced life. Aside from this there is no indication of an hereditary predisposition to mental or nervous disease. So far as can be ascertained alcoholism, phthisis and organic heart

disease, as well as epilepsy, chorea and hysteria, form no part of the family history.

Eighteen hours before admission he was told that a tree, which he valued very highly, had been cut down, and at once he became very noisy and violent, rushing about the house and destroying everything with which he came in contact. His language was made up of meaningless words and incoherent sentences. Before he could be overcome he had destroyed glass and furniture, and had also caused bodily injury to all about him as well as to himself. He was restrained to a bed, with irons about his hands and feet, from the beginning of the attack to the time of admission, a period of eighteen hours, the mental condition remaining unchanged.

At the time of admission a careful physical examination was, for obvious reasons, impossible, but the following facts were obtained: Pulse, 140 and full; respiration, 23; temperature, 101° F. (taken after the patient was asleep); tongue dry; body covered with perspiration; discoloration of recent injuries over the body; the carotids and temporals were full and pulsating strongly; the face, neck and eyes were congested. The mental symptoms were essentially the same as before admission. There were constant activity and destructiveness, seemingly without purpose. Not only did reason seem to be absent and consciousness greatly perverted or abolished, but the special senses apparently failed to furnish data as guides for action. In his mad career the patient, apparently entirely oblivious to his surroundings, would rush against objects about him, animate or inanimate, and thrown by the violence of his contact with the object, would again start in another direction. The violence was so great as to endanger the lives of the patient and those about him, and he was therefore restrained upon a bed, with attendants constantly about him, and given a hypodermatic injection of hyoscine hydrobromate, and ice applied to his head. As a result of the hypnotic the patient passed into a quiet sleep, during which, the temperature, pulse and respiration slowly fell to normal, and the marked congestion of the head disappeared. This sleep continued for about ten hours, and at its conclusion, the patient was quiet and somewhat confused, and had a slight headache and a few hallucinations, all of which may be accounted for by the use of the hypnotic. There was complete forgetfulness of the events of the previous thirty hours, although he remembered the loss of the tree. A physical examination at this time failed to show any organic disease, and no evidence of epilepsy could be found in the physical condition of the patient. At his own request he was kept for a short time in order to recover from the exhaustion of the attack. Since his discharge I have watched the patient with interest for further attacks, but up to the present time, three years since his discharge, no others have occurred.

While not intending to generalize from a single case, the following points of interest have, nevertheless, occurred to me from its study:

1. The diagnosis of the disease as that known as transitory frenzy is established by the following important symptoms: (a) rapid onset without premonitory symptoms; (b) short duration; (c) intensity and destructive character of the excitement; (d) the abolishment or great perversion of consciousness; (e) complete amnesia; (f) sudden termination after sleep. Although the sleep was induced by hyoscine before the period of excitement had come to an end, it is certain that the use of the hypnotic could not have had no effect in determining the duration of the disease.

2. That transitory frenzy has occurred in this case without a marked hereditary predisposition to nervous or mental disease, and it would seem to be doubtful whether that distinct insane neurosis, as claimed by Maudsley ("Responsibility and Mental Disease,") could be recognized.

3. That while authors seem to agree that one attack does not predispose to another, yet in this case there were three distinct attacks, similar in nature and differing only in duration.

4. While most reported cases have occurred in young adults, this case was in a patient approaching middle age.

5. That in its early stages it closely resembled typhomania, from which it is easily distinguished by its duration and termination.

6. That the homicidal and destructive inclinations resulted from an entirely unguided frenzy rather than from any morbid reasoning process, and were apparent rather than real.

7. That it should have an independent place in the classification of mental diseases. While resembling markedly epilepsy in that it is apparently a mental explosion, as claimed by Maudsley, it is essentially different in the following respects: (a) no stomachic or mental signs of the epileptic condition are present; (b) there is no hereditary predisposition to the neuroses; (c) the most careful investigation fails to show either nocturnal or diurnal convulsions. To assume epilepsy would seem to be looking in the dark for an explanation, and as Kiernan well says: "You cannot prove the epilepsy; you can the mania, and it is transitory; and is it not as easy to accept the theory of transitory mania as it is to go wandering after a far-fetched, forced explanation?" On the other hand, is it a mania of short duration? The mental condition seems to be essentially different from mania for the following reasons: (a) sudden development with the absence of premonitory symptoms; (b) short duration and sudden termination; (c) total amnesia and so marked a change in consciousness; (d) the homicidal and destructive tendencies are apparently of a different origin from

those of mania; (e) termination without even a temporary mental impairment. Several of the reasons given above will distinguish the condition from melancholia with extreme agitation. If it is a distinct psychosis, the nature of the condition is well expressed by the term transitory frenzy.

8. It should have recognition from a medico-legal standpoint, and be fairly considered when offered as a defence in criminal cases. Feigned it undoubtedly is, and to such an extent that it is in disrepute, and is not accepted as a defence in court. Had our patient committed some crime while in this condition of frenzy, his defence of insanity should certainly have been an absolute defence before the courts.

9. It would seem to be impossible to determine the pathological condition which gave rise to the sudden frenzy in this case, but, whatever it may be, it would seem almost necessary that, in order to permit the sudden onset and the rapid termination without mental impairment, it must be circulatory in character. In our case, whatever may be its relation to the attack, there was certainly a marked cerebral and meningeal congestion.

MAYBERRY.

On Measurements of the Rapidity of Association in the Insane, Especially in Circular Insanity.

By Prof. Zieten (*Neurol. Centralbl.*, 1896, No. 7). The method pursued consisted principally in the following tests:

1. The patient, on hearing one of the ciphers between 1 and 11 called out, had to answer with the next one. (If, for instance, 8 was called out, the patient had to answer 9). The time elapsed was measured.

2. The patient, on hearing one of the ciphers between 1 and 10 called out, had to answer with the second next cipher. (If, for instance, 8 was called out the answer had to be 10).

3. On the call "now" the patient had to answer by reciting the cipher series 1, 3, 5, 7, 9, or 2, 4, 6, 8, 10.

The time measured for tasks No. 1 and No. 2 was the interval elapsing between the moment when the experimentator called out the cipher and the moment when the patient uttered the first sound of the next or second next cipher asked.

For task No. 3 the time was measured between the moment when the experimentator called out the "now," and the moment when the patient had uttered the last cipher of the series asked.

The apparatus used was a watchlike arrangement allowing the measurement in one-hundredths of a second. By one arrangement the machinery could be started, but the movement of the two indices marking the time elapsed was started only by a second arrangement, that is, when a button was pressed down. As soon as the pressure upon the button was ceased, the movement of the indices stopped. The experiments were

invariably started in the following manner: The machinery was first started, the experimentator then pressed upon the bottom and in the same moment called out the cipher. As soon as the answer came the pressure upon the bottom was removed.

The investigations performed in the above manner on a patient affected with circular insanity gave the following interesting results.

1st. In the stages of maniacal exaltation, the answers with the next cipher and those with the second next cipher were given considerably faster than at the times of melancholy depression.

2d. The rapidity of the answers with the series of ciphers (1, 3, 5, 7, 9 or 2, 4, 6, 8, 10) as found at the times of maniacal exaltation differed very slightly from that found at the times of melancholy depression.

Zieten concludes from this that in states of maniacal exaltation the whole associative activity is accelerated. If Kräpelin's hypothesis, that only the act of speaking was facilitated, hastened, there could not be such a difference between the results of the tests, No. 1 and 2 on one hand and the tests No. 3 on the other hand. It is evident that tests No. 1 and 2 require more associative activity than the tests No. 3. ONUF.

EDITORIAL NOTICE—1897.

THE closing of this year's volume marks the termination of a critical period in the history of the JOURNAL. Critical, inasmuch as in the face of many discouragements the management, with no little cost and effort, saw the scope and usefulness of the JOURNAL grow steadily year by year in the interests of American Neurology. Men foremost in the ranks of knowledge and power in its special field have been added to the staff and it has established itself as the official organ of the three Neurological Societies of the country. The work of the JOURNAL has grown to regimental proportions and outgrown the capabilities of a single captain. A careful preparation of a large amount of scientific material, the unison of diverse societies and sectional interests compels a division of labor, and a rearrangement and enlargement of the staff has been effected as follows: Editors: Dr. Chas. L. Dana, Dr. F. X. Dercum, Dr. Philip Coombs Knapp, Dr. C. K. Mills, Dr. James J. Putnam, Dr. B. Sachs, and Dr. M. Allen Starr. Associate Editors: Dr. Ph. Meierowitz and Dr. Wm. G. Spiller. Managing Editor: Dr. Chas. Henry Brown.

Periscope.

Under the Direction of the Following Collaborators :

CHAS. LEWIS ALLEN, M.D., Wash., D.C. P. MEIROWITZ, M.D., New York.
J. S. CHRISTISON, M.D., Chicago, Ill. J. K. MITCHELL, M.D., Phila., Pa.
A. FREEMAN, M.D., New York. B. ONUF, M.D. Brooklyn.
S. E. JELLIFFE, M.D., New York. W. B. PRITCHARD, M.D., New York.
WM. KRAUSS, M.D., Buffalo, N. Y. H. PATRICK, M.D., Chicago, Ill.
I. LOWENKOPF, M.D., New York. S. SHIVELY, M.D., New York.
R. K. MACALESTER, M.D., New York. A. STERNE, M.D., Indianapolis, Ind.

ANATOMICAL.

On the Nerve Cells of Dogs Inoculated against Lyssa. By Dr Béla Nagy. (*Neurol. Centralblatt*, 1896, No. 2). The histological researches of Schaffer, Babes, Mihailesco and others have shown that the nerve-cells undergo certain pathological changes under the influence of the lyssa poison. N. himself has demonstrated that there is a certain relation between the degree of these changes and the duration of the effect of the poison.

The purpose of the present investigations was to study the condition of cells in immunized animals. These researches have shown that the cells of the central nervous system of dogs immunized against lyssa, are entirely intact, and that they remain absolutely immune against injections occurring after the immunisation. N. further claims that on the grounds of these findings, he has succeeded in establishing an anatomical basis to the Högyes-Pasteur immunisation treatment. ONUF.

PHYSIOLOGICAL.

On the Severance of the Cord of Dogs at High Levels. By Prof. Gad and Dr. Flatau. (*Neurol. Centrbl.*, 1896, No. 4). Bastian and others, from clinical experience, have stated that lesions of the upper dorsal and lower cervical regions of the cord cause disappearance of the kneejerk, a statement which was recently corroborated by the painstaking, clinical and pathologic anatomical researches of Bruns.

The purpose of Gad's and Flatau's researches was to study the relation of such lesions to the condition of the kneejerks, and of the reflexes generally by experiments upon dogs. In order to avoid opening the dura, the authors, instead of per-

forming transverse section of the cord with a knife, secured severance of continuity by passing a thread around it, constricting it firmly by tying a knot and cutting the thread off after the desired effect was reached. In one case the cord was thus severed in the upper dorsal region (between the third and fourth dorsal segments); on a second dog, in the lowest cervical region (between the seventh and eighth cervical segments). A third dog was operated upon between the dorsal and lumbar regions.

In the two first-named animals (lesion in lower cervical or upper dorsal region) the plantar reflex could be produced as early as the next day after the operation. On the following days the abdominal and cremaster reflexes appeared. These simple reflexes remained all the time without showing any distinct deviations from normal conditions.

The patellar reflexes had been tested in both cases before the operation. After the operation the knee-jerk was on the whole diminished, sometimes hardly to be noticed, but never entirely absent. In the castral animal with lesion between the lumbar and dorsal portions the knee-jerk was, on the contrary, highly exaggerated.

In the dogs with the high lesion of the cord, G. and F. could further note the following reflexes:

1st. The scratching reflex. It could be easiest produced by rubbing that part of the skin of the thorax which corresponds to the mammillary line. The reflex consists in a rhythmic scratching "of the abdominal wall" with the toes of the hind legs. The reflex ceases when the sensory stimulus ceases, or if an induction current is applied at the same time.

2. Defensive movements (*Abwehrbewegungen*). They are produced by pricking the toes of the hind legs several times in succession with a pin. They are also stopped by application of an induction current.

3. The oval reflex remains perfectly preserved and can be stated directly after the operation.

4. Micturition took place spontaneously, which, however, did not prevent a certain retention of urine; or it could be started by pressure upon the fundus vesicæ. Defecation was always (the micturition sometimes) accompanied by extension movements of the posterior extremities in which the tail also took part.

5. The coitus reflex. Produced by tickling of the glans penis. It consisted in, "coitus movements" of the trunk and lower extremities and was more distinct in the male dog as in the more active partner in the act.

That the continuity of the cord had been entirely severed was indicated by the absolute loss of sensation and by the findings of the autopsy.

ONUF.

PATHOLOGICAL.

A Study in Comparative Psychology. By Prof. A. Forel (*L'année Psychologique*, 1896). The researches of comparative psychology can bear only upon the most primary notions, and even regarding these we must renounce to an actual assimilation of our subjective syntheses with those of animals. If we observe the acts of the various species of animals and compare them to ours we meet with one fundamental fact, viz: the apparent antagonism of instinct on one side, of intelligence on the other. The instinct, although automatic and blind, acts yet with such precision in the complexity of purposes so it be reached, that it counterfeits the sagacity of reason. One might call it an automatized sagacity, a crystallized intelligence. In fact, the instinct and the reason prove that the nerve centres can act in two manners to reach the same end: (a) automatically; (b) in an adaptive, plastic manner, which we call intelligence, because it adapts itself to untorsen circumstances while the instinct is directed by fixed laws and acts only in certain order and upon the incitation of certain sensory stimulations; if the latter are absent the mechanism refuses to act or ceases to act in a co-ordinated manner. These two kinds of nerve activity F. proposes to call the plastic and the automatic respectively. There is no absolute antagonism between automatism and reason; there are forms of nerve activity between the two and one can pass into the other. This becomes evident if we consider the following facts:

1. Man himself is loaded with so-called secondary automatisms, acquired by habit. His acts, first plastic, adaptive in their details and at the same time hesitating, slow, uncertain, become sure, rapid and well co-ordinated by repetition, but they grow at the same time mechanical, fixed, automatic. By admirable syntheses of these two kinds of activity we learn (for instance, in musical performances) to subordinate complex automatisms thus formed, to a superior plasticity which co-ordinates, modulates them, has command over them, and on its own part adapts itself to the brightest harmonies in the momentary inspiration of imagination.

2. Aside from the secondary or habit automatisms there are inherited automatisms, called instincts. Here we can again distinguish two varieties. Some are complete; a simple sensory stimulation can put them into complete action from the moment of the birth of the animal or from the moment when their manifestation appears. The others are incomplete and need more or less schooling for their complete development. The gait, absolutely instinctive in the chicken, is nearly so in the dog, but must be learned by man.

3. Even in the execution of the apparently most complete automatism, even in insects, 'intermezzos' are observed consisting in short and simple "plastic" or adaptive activities.

4. The abandonment, the non-activity of an automatism makes the nerve centre (or germinative plasma) presiding over it come back on the "plasticity" (adaptivity).

5. The complex automatisms which are adapted to a special purpose require an infinitely lesser number of neurons than the plastic faculty of individual adaptation requires for the same complexity of action.

The brain of the ant represents a very small association of small neurons, yet this insect (that is, the *Arbeiterameise*) has very complex and very great social instincts. But taken individually and out of the domain of its instinct, the ant is a simple insect nearly incapable of the most simple reflexion. It is superior, indeed, to most of the other insects, but with regard to adaptation (plasticity) it is infinitely inferior to the most inferior mammalia, inferior even to the most cold-blooded vertebrates.

Yet even the ants are not devoid of plastic activity; they show many variations and individual plastic adaptations in their otherwise automatized actions.

The interesting facts which F. adduces in support of the view that the ants are also capable of plastic activity must be read in the original, which contains also highly interesting descriptions of the social instincts of these insects.

We may still once more note F's important conclusion that our psychology cannot be transplanted into that of the insects. We must content ourselves with exact biological observations and carefully note the facts of plastic activity and automatic activity in trying to understand and appreciate them as exactly as possible.

ONUF.

On a Little Known Form of Occupation-Neuralgia. By Prof. Bernhardt (*Neurol. Centralblatt*, 1896, No. 1). Under the above

title, B. describes a condition characterized by pain in the epicondylus externus humeri, sometimes also of the capitulum radii; this pain is in some cases spontaneous, in others, there is only tenderness to pressure. Usually the right arm is affected in this manner, seldom the left. When the arm is at rest there is usually no pain, or only slight pain. As soon as the arm and especially the hand is used, the pain sets in or is increased and irradiates over the whole dorsum of the forearm down to the hand. It is probably by action of the extensor-muscles of the hand and fingers that the pain is created, and B. says that evidently exertion of the said groups of muscles is the principal etiological factor. Traumatism and refrigeration may also come into consideration.

Whether a slight periostitis is at the bottom of the trouble cannot be decided. Such inflammation could not amount to much, as even in the most marked cases, redness, swelling and elevation of the temperature are entirely absent.

Therapeutically, leeches may be of service in those cases in which there is great tenderness of the epicondylus externus to pressure. In other cases, hydropathic applications, painting with iodine, application of the anode of a moderate galvanic current, or use of the faradic brush prove to be helpful.

ONUF.

THERAPEUTICAL.

De la Demorphinisation Chimique. Erlennmeyer (*Le Progres Médical*, Aug. 1, 1896). In the article above referred to, Erlennmeyer gives the profession of France, to which his previous work upon morphinism (*Handbuch d. Spec. Ther.* innerkr. Penzoldt u. Stintzing, Vol. II., pp. 335-372) seems to have been unknown, a concise account of his method of rapid demorphinisation. This method is entirely chemical and is based upon the fact that hyperacidity of the stomach immediately ensues upon the absolute withdrawal of the drug from chronic users of it. During the period of morphinism an acidity of the stomach obtains, and morphine is found in the stomach, even to the extent of one half the dose, when injected hypodermically, where it undergoes changes of chemical nature.

Erlennmeyer claims to have obtained very much better results with the rapid than with the gradual withdrawal of the morphine, even the dreaded so called "abstinence symptoms" being avoided. His new method is simply as follows: the hyperacidity of the gastric contents is neutralized by strong solutions of bicarbonate of sodium in the form of Fachinger water, which was given in quantities of one litre per diem.

Instead of the usual severe diarrhoea, constipation ensued. No disagreeable symptoms were shown, those ordinarily present after the drug is stopped, nausea, vomitus, colic, pains in the back and legs, etc., did not appear in any of the cases treated. Reflex nervous symptoms were also absent. Stomach lavage Erlennmeyer no longer considers necessary in the treatment of these cases before alkaline waters are used. Thereby a great deal of suffering is spared this class of patients.

Fachinger water contains but 3.5 grains per liter, vichy 5.1 grains. As the latter is more readily obtainable here and probably answers the same purpose, it may be substituted for the former. There seems to be no reason why the plain bicarbonate in pure water should not be used. Unfortunately Erlennmeyer's method, which is certainly simple and seemingly effective, offers only temporary relief from the morphine habit.

The desire for this drug is not removed. Yet it is a great advantage to be able to wean the habitué for a time, rapidly, without the usual distress experienced by the gradual withdrawal of the drug, and indeed without any further use of the opiate.

STERNE.

Book Reviews.

"BEITRÄGE ZUR KENNTNISS DER NORMALEN MENSCHLICHEN NEUROGLIA." Carl Weigert, Frankfurt, a. M. 1895.

After seven years of painstaking study the author has succeeded in developing a method by means of which a selective stain of the neuroglia can be made. The nerve cells and their processes do not take up the blue neuroglia stain; they appear yellow by contrast. The axis cylinders and nerve fibres remain entirely unstained. Of the neuroglia only the fibres and nuclei become stained, the cell bodies of the neuroglia cells remain unstained. Aside from the nuclei of the neuroglia cells the method only brings out those neuroglia fibres which are especially differentiated. If there are interstitial substances in the central nervous system which lack such differentiated fibres, they cannot be brought in evidence by this method.

The technic of the method was given in the January number of this JOURNAL. It remains to give a review of the results which Weigert has attained by its use.

He begins his monograph with a historical review of the literature on the neuroglia. The investigations of Frommann, Virchow, Deiters, Golgi, Jastrowitz, Boll, Ranvier and others are reported and discussed here. He points out that Ranvier was the first to demonstrate that the neuroglia structure consists not only of cells, but also of fibres, which latter are for the most part quite independent of the cells.

The second chapter treats on the neuroglia fibres and their relation to the cells. Weigert concludes:

1. The neuroglia fibres which heretofore were considered to be processes of Deiter's cells, are not chemically identical with the protoplasm of these cells but differ entirely from them as to their chemical properties.

2. This chemical difference can be noticed in the fibres, not only at some distance from the cell, but from their very beginning in the immediate vicinity of the cell nucleus.

3. Most of the so called processes of the neuroglia cells are not cell processes at all, but fibres which are completely differentiated from the protoplasm.

If Frommann, afterwards Golgi, and most of the recent authors have asserted, that the neuroglia consists only of cells and their processes, this statement holds true only for the embryonal period. In the fully developed normal state the neuroglia consists of cells and also of fibres, which latter predominate so enormously over the former in quantity and in the space they occupy, that they must be considered the more essential component of the neuroglia.

In the third chapter Weigert discusses the question whether the fibres differentiated by his method are indeed neuroglia fibres. The question is answered in the affirmative and the following proofs are adduced in favor of this view:

1. All nervous structures remain unstained with Weigert's new method, while the fibres stain dark blue [conclusion *per exclusionem*].

2. The fibres represent a modified substance, no more protoplasmatic, and which is "emancipated" from the cell-body.

3. The fibres (and the cells belonging to them) behave pathologically like connective tissue, that is they proliferate when the specific tissue, the nerve tissue undergoes disintegration.

Chapter IV, treats on the relation of the neuroglia fibres to eventual other neuroglia substances and to the connective tissue. Weigert concludes that positively nothing definite can be said on the nature of the neuroglia fibres. Of the negative results the most important is this, that they are absolutely different from all fibres of the common connective tissue.

In the fifth chapter the histogenetic position of the neuroglia is dis-

cussed. It is found that the neuroglia has a genetic relation, not only to the ectoderma in general, but quite especially to a true epithelium, also in the true post embryonal sense. On the other hand the seemingly paradoxical fact is stated that the neuroglia behaves morphologically and histologically like connective tissue [Bindesubstanz].

The sixth chapter is taken up with a description of some other histological properties of the neuroglia fibres. These fibres are either more or less straight, or they are markedly curved. They are solid, not tubulated, they are smooth, without varicosities of any kind. Weigert has never observed ramifications nor anastomosis of the fibres.

Chapter VII, and VIII, treat on the general and special topography of the neuroglia fibres. The details regarding the structure and distribution of the neuroglia in the spinal cord and various parts of the brain cannot be reported here, but must be read in the original.

In the ninth chapter Weigert discusses the physiological significance of the neuroglia. His conclusions are for the most part negative. Ramon y Cajal's views on the physiological significance of this tissue are considered as erroneous.

The book concludes with a description of the method, which has led to such brilliant results and which opens prospects for further fruitful research.

The many beautiful drawings or pictures are an attraction by themselves, and we can believe that the author in studying the sections, became so enamoured with the beauty of the design that he nearly forgot to study them. At any rate the pictures alone are sufficient to excite one's liveliest interest not only for a study of the book but for a study of the method. We fully endorse the author's statement, that a new method is a key for opening the door of the unascendable wall enclosing the scientific treasures; and that Weigert's method will open the door to many scientific treasures is to be expected, and will be the best reward for the author's patient and laborious work. ONUP.

LEÇONS CLINIQUES SUR LES MALADIES MENTALES ET NERVEUSES. SEGLAS. (SALPÊTRIÈRE, 1887-1894) RECUEILLIES ET PUBLIÉES PAR LE DR. HENRY MEIGE. PARIS, 1895.

This exceedingly bulky volume is not a systematic treatise on insanity but merely a series of clinical lectures, as the title implies, extending over a period of years. Such a book ought to show some special merit in order to be able to gain a place in this age of print. Eight hundred pages of closely printed matter, devoted merely to the clinical aspect of a subject, are not altogether inviting at first sight if for no other reason than that they make such an unreasonable demand on the practitioner's time. We doubt whether there is any clinician in mental diseases who should not be able to say in one half this space all that he finds to say in the clinic. The fact is, mere clinical writing is especially liable to become intolerably prolix. The histories of patients, their sayings and doings (especially if the patients are lunatics), can be spun out so interminably and uninterestingly that the reader loses whatever profit there is in them in a mere sense of weariness and ennui. Dr. Seglas' book, like too many other French lectures, has this fault of diffuseness well marked. It could certainly have been condensed into one half the space with advantage both to itself and to the reader.

We have been especially impressed with the three chapters on Obsession; and as this subject is still a rather more novel one than most themes in psychiatry, and still needs continued and systematic study to make it familiar to students, we shall review the author's exposition of it, especially as it is one of the best portions of the book. In the first place, we may say that the term "obsession" strikes us as good and concise, and worthy of more general adoption by writers in the English language. The term has been generally adopted in France to denote the mental state which is dominated by fixed and imperative conceptions, and the meaning still applied to it in this country by some lexicographers (*i. e.* possession by demons) seems to be generally ignored abroad.

Seglas points out the fact that "obsedent," or fixed ideas were noted

by Esquirol and later writers, who, however, included all these cases in the vast list of monomanias. He shows, briefly, how the tendency has been in recent years towards a reaction in this respect. Every person possessed by an imperative conception or morbid dread is not now necessarily to be looked upon as "degenerate" or as the son of degeneration. Seglas, himself, says that such a view is too absolute. Like Régis, he is inclined to think that there are at least two forms of obsession: first, the truly degenerative form and, second, the accidental or neurasthenic form. Between the two extremes there are many intermediate forms. Such a view, we believe, is in accord with the facts of mental pathology. Nature does nothing by leaps; and in pathology as elsewhere there are gradations everywhere. Certainly many minds, practically normal, have been plagued at times with these pecciferous guests.

The obsesent idea, according to Seglas, is usually remittent. It has an insidious approach in the degenerative type, but a rather abrupt onset in the neurasthenic form—a point of distinction of some value. There are usually premonitory symptoms, as headache, anosthenia, anxiety, insomnia, digestive disorder, apathy, loss of memory, inability to fix the attention, and dull perception. There is even an agitated form, the patient presenting the peculiar state known as *mentism* (a sort of automatic cerebration over which he has no control) and finally even confusion. One or more of these symptoms constitute a kind of *aura*; or a more distinct and characteristic aura may be localized in the head or epigastrium. Seglas' suggestion of an aura here seems to ally this disease to other more truly explosive psychoses, as epilepsy, hysteria and migraine.

Seglas adheres to the quality of utility as a criterion by which to distinguish the obsession of a normal from that of a morbid brain. For instance, the savant's absorption and mental stress in solving a vexed problem may be identical with the obsession of an arithromaniac or a doubter—but the *utility* of his researches distinguishes them. Here, we think, the distinction is rather too absolute, for savants have been known to become morbidly obsessed even upon a problem the utility of which was undoubted. We should rather say that the *voluntary* character of its devotion to a problem distinguishes the normal mind from the obsession of a morbid one. The distinction is in the patient's *relation* to the idea, rather than in the *character* of the idea itself; although it cannot be denied that this latter as it refers to utility has great significance.

Seglas notes the symptomatology of these ideas very fully. He depicts the conflict into which the patient enters with them. In some cases the patient's success is perfect—this is usually attained by distracting the attention by change of scene or occupation. Sometimes this success is only ephemeral. In the worst cases the patient yields entirely to the besetting idea, and the whole field of consciousness is contracted and centered about the dominating idea, so that the voluntary intellectual activity of the brain is reduced to a minimum. The more hopeful cases, we believe, are those in which the patients, recognizing the morbid character of their impulses, have mental self-control sufficient to avoid a conflict with them. In these cases the obsesent ideas gradually loose their hold, whereas a conflict usually confirms them. This is an important therapeutic indication.

The accompanying distress is always a prominent symptom of obsession. This is a psychalgia, although in a different sense from that of melancholia. Seglas says it is caused either by the force of the idea, its contents, (as the homicidal impulse) or a failure to comply with it. It is frequently accompanied with the physical signs of profound emotion, as precordial anxiety, headache, sweating, flushing, tremor, vertigo, and even syncope. This leads the author to a discussion of that most interesting psychological subject—the value and place of emotional disturbance in obsession. What is the relation of this disturbance to the besetting idea? Is it primary or secondary? Seglas, after marshalling the various opinions extant—as of Westphal, that the emotion is always secondary, or caused by the obsession, or of Friedreich, that the emotion is the primitive or fundamental state, which indeed can obtain without the idea—after stating these and various intermediate opinions states his own conclusions on this complex question. They are, that obsession rests always upon a morbid emotional foundation, that the obsesent idea is at-

tached to an emotion of some kind, and that even if the emotional disorders are not purely secondary, they are at least always exaggerated by the obsessed idea. In this connection the query arises, how can an emotion exist apart from some idea which excites it?

On the subject of hallucinations in obsession Seglas takes a very positive stand in opposition to what is evidently the prevailing opinion. These hallucinations, although voted down by the last international Congress, are maintained by the author. His criticism of the subject is clear and trenchant, and to many will probably be convincing. Among instances given are some of the so-called motor verbal hallucinations, *i. e.*, in which the patient feels an interior voice, a voice in his or her throat. Allied to these is the more dangerous motor hallucination which may accompany one of the impulsive ideas—as for instance, the homicidal or suicidal idea. In this the patient has a distinct hallucination of performing the motion—it is a kinesthetic hallucination. These constitute the most dangerous type, and present medico-legal problems. They are to be distinguished from the merely visual presentations of the act, which are the more common of the two. Common sensibility, as well as special, may show hallucinatory phenomena. The most important of these are various neuralgic pains, especially about the head, face, nose and mouth. These may be most misleading. Sometimes curious cenesthetic hallucinations appear, as a sense of the head swelling to immense proportions, or a leg being doubled, and sometimes even of the whole body being not the patient's own.

The actual state of consciousness is the last important topic in connection with obsession with which Seglas deals. Here, too, he is independent and original. He does not teach that the patient is in full possession of his personal or self-consciousness while under the influence of his obsessed idea. Retaining the term personal consciousness for that mental state in which normally the patient has a full synthesis of present perceptions joined by reflection to the mass of memories of past perceptions which constitutes the ego, Seglas holds that this state is so affected, so narrowed, as it were, by the loss of power of attention and volition in these patients, under the domination of their besetting ideas, that a very imperfect synthesis results, and hence the consciousness is impaired. This is so to such an extent in the worst cases that a state not unlike double consciousness results, the patient's personality in the morbid synthesis being as something distinct from that of his normal state. In some cases there results for the patient a sense of confusion of his personal identity. The conflict with the besetting idea thus leads to a sense in the patient of a struggle between two states of consciousness—the normal ego, and the other or maimed personality which is dominated by a besetting idea which seems to come from without. The analogy, it seems to us, between these obsessed ideas, on the one hand, and hallucinations on the other, is not remote. As Kraft-Ebing has said, the former are due to morbid excitement of representative centres. They control the patient as something spontaneous, arising outside of his ordinary field of consciousness.

The author calls attention to the fact, that all cases included under any one of the popular sub-divisions are by no means necessarily alike. Thus under "agoraphobia" are included many diverse cases, whose morbid fears of space are not identical in kind.

Obsession, according to Seglas, never ends in dementia. In the constitutional types, however, it may merge especially into delusions of persecution, the patient deteriorating into well-marked paranoia.

As we have already said, we have selected M. Seglas' lectures on obsession for the sole object of our brief notice. This we have done because of the importance of the subject, and because these chapters furnish an admirable example of the author's best thought and best manner. It would be obviously unfair, however, not to remind the reader that the book includes a very general survey of the field of psychiatry. Prominent among the subjects treated are confusional insanity, melancholia, paranoia (with special chapters on the hallucinations and delusions of these two latter diseases), astasia-abasia and hysteria. These will amply repay those students who have time to devote to the voluminous chapters in which they are cast.

JAMES HENRIE LLOYD.

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